07/954,772
DIALOG
11-1-93
CHK'D, AM

3/5/1 (Item 1 from fi[redacted] 399)
104048361 CA: 104(7)48361m PATENT
Detectable molecules and use
INVENTOR(AUTHOR): Stavrianopoulos, Yannis
LOCATION: USA
ASSIGNEE: Enzo Bio Chem., Inc.
PATENT: European Pat. Appl. ; EP 154788 A2 DATE: 850918
APPLICATION: EP 85100898 (850129) *US 575396 (840130)
PAGES: 82 pp. CODEN: EPXXDW LANGUAGE: English CLASS: G21H-005/02A
DESIGNATED COUNTRIES: AT; BE; CH; DE; FR; GB; IT; LI; LU; NL; SE
SECTION:
CA100008 Biochemical Methods
CA101XXX Pharmacology
CA102XXX Mammalian Hormones
CA115XXX Immunochemistry
CA124XXX Alicyclic Compounds
IDENTIFIERS: aminocyclohexanetetraacetate chelator coupling bioactive mol , biotin coupling bioactive mol, DNA chelator deriv hybridization probe
DESCRIPTORS:
Chelating agents...
as labels, for biopolymers
Radioelements, reactions...
binding of, by chelating labels
Urethanes...
chelating agent derivs., resin-bound, in alc. labeling with chelating agents
Radiotherapy...
chelating agent-labeled monoclonal antibodies with bound radioactive metals for
Antibodies, monoclonal...
chelating agent-labeled, radioactive metal binding by, for radiotherapy
Biopolymers... Polymers, uses and miscellaneous... Polysaccharides, uses and miscellaneous... Proteins...
chelating labels for
Deoxyribonucleic acid sequences...
detection of, with chelating agent-labeled hybridization probe
Virus, bacterial, lambda...
DNA of, labeling of, with chelating agent as hybridization probe
Albumins, blood serum... Deoxyribonucleic acids... Immunoglobulins, G...
labeling of, with chelating agent
Amines, reactions... Ceramides... Glycols, reactions...
labeling of, with chelating agents
Alcohols, reactions...
labeling of, with chelating agents, Dowex 1 in
Radiochemical analysis...
of DNA sequences, with chelating agent-labeled-DNA hybridization probes, radioactive metal binding in relation to
Antibodies...
to chorionic gonadotropin, of human, chelating agent labeling of, radioactive nickel binding in relation to
CAS REGISTRY NUMBERS:
9002-61-3 antibody to human, chelating agent labeling of, radioactive nickel binding in relation to
60440-47-3 cyclohexanediaminetetraacetic acid deriv. binding by, ceramide labeling in relation to
9085-42-1 cyclohexanediaminetetraacetic acid derivs. binding to
9001-78-9 detn. of, with aminonaphthol phosphate labeled with chelating agent
107-96-0 dimerization of
634-91-3 DNA activation with, product coupling with thiols in relation to
99936-05-7 DNA contg., chelating label coupling with
99938-68-8 DNA labeling with
111-17-1 esterification and hydrazinolysis of
85-43-8 hydrolysis and esterification of
71-63-6 labeling of, with chelating agent

99938-72-4 labeling of, with chelating agent for alk. phosphatase detn.
99938-60-0P prepn. and alkylation of, with chloroacetate
99938-57-5P prepn. and conversion to diazide
99938-59-7P prepn. and hydrolysis of
99938-65-5P prepn. and reaction with allylamine acetate
99938-58-6P prepn. and reaction with benzyl alcs.
156-57-0P 540-63-6P 689-02-1P 1193-02-8P 22948-02-3P prepn. and reaction with bromohydroxycyclohexanediaminetetraacetic acid
90015-82-0P prepn. and reaction with DNA
5048-50-0P prepn. and reaction with hydrazine
6292-68-8P prepn. and redn. of
99938-55-3P 99938-63-3P 99938-64-4P 99938-67-7P 99938-69-9P 99938-70-2P prepn. of, as chelating label
99938-66-6P prepn. of, chelating labels in relation to
99938-61-1P 99938-62-2P prepn. of, for chelating label synthesis
156-57-0 reaction of, with biotin hydroxysuccinimide ester
35013-72-0 reaction of, with cysteamine
1600-27-7 reaction of, with dUTP
84158-10-1 reaction of, with mercurated dUTP
1173-82-6 reaction of, with mercuric acetate
79-11-8 reactions, alkylation by, of diaminocyclohexene
7440-02-0 reactions, chelation of radioactive, by chelating agent-labeled antibody to human chorionic gonadotropin
7440-48-4 reactions, chelation of radioactive, by chelating agent-labeled DNA hybridization probe
100-51-6 reactions, reaction of, with cyclohexenedicarboxylic acid diazide
99938-71-3P resin-bound, prepn. and conversion to isocyanate of
99956-12-4P resin-bound, prepn. and conversion to urethane of

3/5/2 (Item 2 from file: 399)
102109375 CA: 102(13)109375b PATENT
Assay method utilizing polynucleotide sequences
INVENTOR(AUTHOR): Pergolizzi, Robert G.; Stavrianopoulos, Jannis G.; Rabbani, Elazar; Engelhardt, Dean L.; Kline, Stan
LOCATION: USA
ASSIGNEE: Enzo Bio Chem, Inc.
PATENT: European Pat. Appl. ; EP 128332 A1 DATE: 841219
APPLICATION: EP 84105028 (840504) *US 491929 (830505)
PAGES: 91 pp. CODEN: EPXXDW LANGUAGE: English CLASS: G01N-033/54; G01N-033/58; C12Q-001/68; C07G-007/00 DESIGNATED COUNTRIES: AT; BE; CH; DE ; FR; GB; IT; LI; LU; NL; SE
SECTION:
CA109002 Biochemical Methods
IDENTIFIERS: polynucleotide hybridization biochem analysis, nucleic acid hybridization biochem analysis, biopolymer detection polynucleotide hybridization, bacteria detection polynucleotide hybridization, cell detection polynucleotide hybridization
DESCRIPTORS:
Immunoglobulins,G...
bromoacetylation of
Animal cell... Antibodies... Antigens... Bacteria... Carbohydrates and Sugars,analysis... Cell... Deoxyribonucleic acids... Nucleic acids... Polysaccharides,analysis... Proteins... Receptors... Virus...
detection of, by polynucleotide hybridization method
Virus,bacterial...
DNA of, biomols. detection by polynucleotide hybridization method with Plasmid and Episome...
DNA of, in biomols. detection by polynucleotide hybridization method Plasmid and Episome,pBR322...
DNA of, mercuration of
Immunochemical analysis... Radiochemical analysis...
for biomols., polynucleotide hybridization method
Nucleic acids...

Hybridization of, in biochem. anal.
Avidins...
in biochem. anal. with polynucleotide hybridizati[redacted] method
Nucleotides, oligo-, uses and miscellaneous... Nucleotides, poly-, uses and miscellaneous...
in hybridization methods for biomols. detn.
Agglutinins and Lectins... Amines, uses and miscellaneous...
Antibodies, monoclonal... Deoxyribonucleic acids, circular... Enzymes...
Fluorescent substances... Hormones... Latex... Resins...
in polynucleotide hybridization methods for biomols. detn.
Microscopy, electron...
of biomols., polynucleotide hybridization method in
Iodination...
of mercurated plasmid DNA
Analysis, biochem....
polynucleotide hybridization methods for
Deoxyribonucleic acids...
single-stranded, in polynucleotide hybridization methods for biomols. detn.
CAS REGISTRY NUMBERS:
634-91-3 5221-17-0 activation by, of DNA
9027-67-2 in adding UMP to DNA
58-85-5 9013-20-1 25086-81-1 25191-20-2 25609-92-1 25656-92-2 26966-61-0 36786-90-0 49717-92-2 49718-20-9 49718-21-0 55684-98-5
in biochem. anal. with polynucleotide hybridization method
95088-44-1 in coupling of nucleic acids to proteins or amines
9001-78-9 37211-65-7 63614-75-5 80449-06-5 95103-35-8 in prepn. of single-stranded bacteriophage DNA
1600-27-7 mercuration by, of plasmid
14257-40-0P 20744-43-8P 29117-49-5P 51103-66-3P 95088-39-4P 95088-40-7P 95088-41-8P 95088-42-9P 95088-45-2P 95088-46-3P 95088-47-4P 95088-48-5P prepn. of, for biochem. anal. with polynucleotide hybridization method
3458-28-4 reaction of, with acetyl chloride
156-57-0 reaction of, with biotin ester
99-92-3 reaction of, with biotin-hydroxysuccinimide ester
7446-08-4 reaction of, with biotinylaminoacetophenone
107-96-0 reaction of, with brominated plasmid DNA
6066-82-6 reaction of, with bromoacetic acid
35013-72-0 reaction of, with cysteamine hydrochloride
540-63-6 reaction of, with DCTA bromide
90015-90-0 reaction of, with dithioethylene
107-22-2 reaction of, with DNA
79-08-3 reaction of, with hydroxysuccinimide
75-36-5 reaction of, with mannose
98-59-9 reaction of, with Me mannoside
124-41-4 reaction of, with sugar tosylates
617-04-9 reaction of, with toluenesulfonyl chloride
58-97-9 reactions, addn. of, to DNA
7726-95-6 reactions, reaction of, with acrolein
127-17-3 reactions, reaction of, with biotinylhexanediamine
107-02-8 reactions, reaction of, with bromine
124-09-4 reactions, reaction of, with iodinated DNA
107-20-0 13291-61-7 95088-43-0 single-stranded DNA labeling by, for biochem. anal.

3/5/3 (Item 3 from file: 399)
102058850 CA: 102(7)58850t JOURNAL
DNA probes - a valuable tool in diagnostics.
AUTHOR(S): Olsiewski, Paula J.; Engelhardt, Dean L.
LOCATION: Enzo Biochem, Inc., New York, NY, 10013, USA
JOURNAL: Med. Lab. World DATE: 1984 NUMBER: Oct. PAGES: 13, 15
CODEN: MLWODQ ISSN: 0140-3028 LANGUAGE: English
SECTION:
CA109010 Biochemical Methods

IDENTIFIERS: virus detection biotinylated DNA probe, disease diagnosis biotinylated DNA probe
DESCRIPTORS:
Deoxyribonucleic acids...
biotinylated, as probe for virus detection and disease diagnosis
Animal cell...
Chlamydia-infected, detection of, with biotinylated DNA probes
Chlamydia... Virus,animal, Epstein-Barr...
detection of cells infected with, with biotinylated DNA probes
Virus...
detection of, with biotinylated DNA probes
Disease... Infection... Neoplasm...
diagnosis of, with biotinylated DNA probes
Leukemia,Friend erythro-...
DNA detection in, by hybridization with biotinylated DNA probes
CAS REGISTRY NUMBERS:
58-85-5D reaction products with DNA, as probes for virus detection in disease diagnosis

3/5/4 (Item 1 from file: 5)
4260668 BIOSIS Number: 27024503
IN-SITU DETECTION OF VIRAL INFECTIONS USING NONRADIOACTIVE DNA HYBRIDIZATION
THALENFELD B E; PERGOLIZZI R; SOLANKI M; MARSHAK A; ENGELHARDT D
ENZO BIOCHEM. INC., NEW YORK CITY, N.Y.
84TH ANNUAL MEETING OF THE AMERICAN SOCIETY FOR MICROBIOLOGY, ST. LOUIS, MO., USA, MAR. 4-9, 1984. ABSTR ANNU MEET AM SOC MICROBIOL 84 (0). 1984. ABSTRACT C69. CODEN: ASMAC
Language: ENGLISH
Document Type: CONFERENCE PAPER
Subfile: BARRM (Biological Abstracts/RRM)
Descriptors/Keywords: ABSTRACT ADENOVIRUS TYPE 2 HERPES SIMPLEX VIRUS TYPE 1 HERPES SIMPLEX VIRUS TYPE 2 EPSTEIN BARR VIRUS CYTOMEGALOVIRUS BIOTINYLATED HOMOLOGOUS DNA PROBES STREPTAVIDIN HORSERADISH PEROXIDASE DIAGNOSIS
Concept Codes:
*10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
*12504 Pathology, General and Miscellaneous-Diagnostic
*33506 Virology-Animal Host Viruses
*36006 Medical and Clinical Microbiology-Virology
00520 General Biology-Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals
Biosystematic Codes:
02210 Adenoviridae (1979-)
02220 Herpetoviridae and/or Herpesviridae (1979-)
Super Taxa:
Microorganisms; Viruses

3/5/5 (Item 1 from file: 25)
2121714 9104380
C/ METHOD AND STRUCTURES EMPLOYING CHEMICALLY-LABELLED POLYNUCLEOTIDE PROBES; HYBRIDIZATION, LABELING
Document Type: UTILITY
Inventors: Johnston Kenneth H (US); Kirtikar Dollie (US); Stavrianopoulos Jannis G (US); Thalenfeld Barbara E (US)
Assignee: Enzo Bio Chem Inc Assignee Code: 03281 REASSIGNED

	Patent Number	Issue Date	Applic Number	Applic Date
Patent:	US 4994373	910219	US 385986	890720
Continuation of:	ABANDONED		US 732374	850509
Cont.-in-part of:	ABANDONED		US 461469	830121
Priority Applic:			US 385986	890720

Priority Applic:
US 732374 850509
US 461469 830121

Abstract:
Polynucleotide sequences in a sample of biological or nonbiological material are detected by a method involving fixing of the sequences on a solid support and forming an entity between the fixed sequences and chemically-labeled polynucleotide or oligonucleotide probes having a sequence complementary to the fixed sequence for determining the identification and/or presence of the target polynucleotide sequences. The chemical label covalently or noncovalently attached to the probe comprises a signalling moiety capable of generating a soluble signal detectable by spectrophotometric assay techniques.

Exemplary Claim:
1. A method for detecting a polynucleotide sequence which comprises: fixing said polynucleotide sequence to a solid support which comprises or is contained within a transparent or translucent, non-porous system, such that a single-strand of the polynucleotide is capable of hybridizing to complementary nucleic acid sequences; forming an entity comprising said polynucleotide sequence hybridized to a polynucleotide or oligonucleotide probe, said probe having attached thereto a chemical label further comprising a signalling moiety capable of generating a soluble signal; and generating and detecting said soluble signal.

Class: 435006000
Class Cross Ref: 435004000; 435188000; 435296000; 435300000; 435810000; 436094000; 436501000; 436521000; 436527000; 436531000; 436532000; 436800000; 436810000; 536027000; 935077000; 935078000; 935086000; 935087000
IPC: C12Q-001/68
IPC Cross Ref: C07H-021/00; G01N-033/533

3/5/6 (Item 2 from file: 25)
2113605 9102135
C/ IN VIVO LABELLING OF POLYNUCLEOTIDE SEQUENCES; GENETIC ENGINEERING
Document Type: UTILITY
Inventors: Kelker Norman E (US); Stavrianopoulos Jannis (US); Yang Heuy-Lang (US)
Assignee: Enzo Bio Chem Inc Assignee Code: 03281

	Patent Number	Issue Date	Applic Number	Applic Date
Patent:	US 4987065	910122	US 803532	851202
Continuation of:	ABANDONED		US 510975	830705
Priority Applic:			US 803532	851202
			US 510975	830705

Abstract:
In vivo labelled polynucleotides, processes for in vivo labelling of polynucleotides, and detection methods and kits characterized by those labelled polynucleotides. The in vivo on biologically-labelled polynucleotides of this invention are useful in the detection of various analytes and in other laboratory, industrial and medical applications.

Exemplary Claim:
1. A process for in vivo labeling of hybridizable polynucleotide sequences with modified nucleic acid bases, comprising the steps of: (a) providing a host, whose genetic information comprises (i) a first polynucleotide sequence capable of incorporating at least one modified base upon replication and a second polynucleotide sequence which confers upon said host, a requirement for an exogenous source of a base, or (ii) a first polynucleotide sequence having a base capable of being enzymatically modified upon replication, and a second polynucleotide sequence of bacteriophage origin, that is capable of coding for an enzyme that modifies the modifiable base of the first polynucleotide sequence; (b) replicating said host under conditions that provide or permit production of such modified base, such that it becomes part of and thereby labels

the first polynucleotide sequence, so as to yield a labeled polynucleotide probe; and (c) isolating said labeled polynucleotide probe.

Class: 435005000
Class Cross Ref: 435006000; 435091000; 435172300; 435252800; 435320100; 935031000; 935058000; 935072000; 935073000; 935077000; 935078000
IPC: C12Q-001/70
IPC Cross Ref: C12Q-001/68

3/5/7 (Item 3 from file: 25)
1863327 8812086
C/ COMPOSITION AND METHOD FOR THE DETECTION OF THE PRESENCE OF A POLYNUCLEOTIDE SEQUENCE OF INTEREST; NUCLEIC ACID HYBRIDIZATION
Document Type: UTILITY
Inventors: ENGELHARDT DEAN L (US); RABBANI ELAZAR (US)
Assignee: ENZO BIO CHEM INC Assignee Code: 03281 REASSIGNED

	Patent Number	Issue Date	Applic Number	Applic Date
Patent:	US 4755458	880705	US 646171	840830
	(Cited in 002 later patents)			
Priority Applic:			US 646171	840830

Abstract:
The present invention relates to a wide range of genetic analyses using the technique of nucleic acid hybridization. These genetic analyses include, for example, the diagnosis of infections by foreign microbes and the detection of specific genetic traits and abnormalities. More specifically, the present invention is related to the detection of the presence of a polynucleotide sequence of interest.

Exemplary Claim:
12. IN A METHOD FOR THE DETECTION OF A POLYNUCLEOTIDE SEQUENCE OF INTEREST IN A SAMPLE OF POLYNUCLEOTIDE SEQUENCES COMPRISING: CONTACTING UNDER HYBRIDIZING CONDITIONS SAID SAMPLE OF POLYNUCLEOTIDE SEQUENCES WITH A COMPOSITION COMPRISING AT LEAST ONE FIRST AND AT LEAST ONE SECOND POLYNUCLEOTIDE AND DETECTING SAID POLYNUCLEOTIDE OF INTEREST BY MEANS OF SAID FIRST DETECTABLE MARKER, THE IMPROVEMENTS COMPRISING: (A) SAID FIRST AND SECOND SEQUENCES ARE LABELED WITH A FIRST DETECTABLE MARKER AND ARE EITHER PRESENT AS SEPARATE MOLECULES FROM WHICH SAID FIRST POLYNUCLEOTIDE SEQUENCE HAS NOT BEEN ISOLATED OR ARE COVALENTLY LINKED AND FURTHER CHARACTERIZED IN THAT SAID FIRST SEQUENCE IS CAPABLE OF HYBRIDIZING TO SAID SEQUENCE OF INTEREST AND SAID SECOND SEQUENCE IS NOT CAPABLE OF HYBRIDIZING TO SAID SEQUENCE OF INTEREST AND IS NOT CAPABLE OF HYBRIDIZING TO SAID FIRST SEQUENCE; AND (B) SAID SAMPLE IS FURTHER CONTACTED, PRIOR TO DETECTING, WITH A COMPOSITION COMPRISING AT LEAST ONE-THIRD POLYNUCLEOTIDE SEQUENCE THAT IS UNLABELED OR IS LABELED WITH A SECOND DETECTABLE MARKER AND CHARACTERIZED IN THAT SAID THIRD SEQUENCE IS NOT CAPABLE OF HYBRIDIZING TO SAID FIRST SEQUENCE AND IS NOT CAPABLE OF HYBRIDIZING TO SAID SEQUENCE OF INTEREST, AND FURTHER CHARACTERIZED IN THAT SAID THIRD SEQUENCE IS: (I) CAPABLE OF HYBRIDIZING TO SAID SECOND SEQUENCE, SUCH THAT BY HYBRIDIZING TO SAID SECOND SEQUENCE SAID THIRD SEQUENCE BLOCKS HYBRIDIZATION BETWEEN SAID SECOND SEQUENCE AND COMPLEMENTARY NON-TARGET SEQUENCES THAT MAY BE CONTAINED IN THE SAMPLE AND DECREASES THE LIKELIHOOD THAT SAID SECOND SEQUENCE WILL GENERATE A FALSE POSITIVE SIGNAL UPON DETECTION OF SAID FIRST DETECTABLE MARKER; OR (II) SUBSTANTIALLY IDENTICAL TO SAID SECOND SEQUENCE, SUCH THAT BY MEANS OF HYBRIDIZING TO SAID COMPLEMENTARY NON-TARGET SEQUENCES THAT MAY BE CONTAINED IN THE SAMPLE SAID THIRD SEQUENCE BLOCKS HYBRIDIZATION BETWEEN SAID SECOND SEQUENCE AND SAID COMPLEMENTARY NON-TARGET SEQUENCES AND DECREASES THE LIKELIHOOD THAT SAID SECOND SEQUENCE WILL GENERATE A FALSE POSITIVE SIGNAL UPON DETECTION OF SAID FIRST DETECTABLE MARKER.

lass: 435005000
lass Cross Ref: 435006000; 435029000; 435035000; 435[illegible]3000; 436003000;
[illegible]

935077000; 935078000; 935081000
IPC: C12Q-001/70
IPC Cross Ref: C08G-077/04; C12Q-001/68

3/5/8 (Item 4 from file: 25)
1811255 8721315
C/ NUCLEIC ACID HYBRIDIZATION ASSAY AND DETECTABLE MOLECULES USEFUL IN SUCH ASSAY; BIOPOLYMER LINKED TO A CHELATING AGENT BASED ON AN O-CYCLOHEXADIAMINEDIACETIC ACID
Document Type: UTILITY
Inventors: STAVRIANOPOULOS JANNIS G (US)
Assignee: ENZO BIO CHEM INC Assignee Code: 03281 REASSIGNED

	Patent Number	Issue Date	Applic Number	Applic Date
Patent:	US 4707440	871117	US 575396	840130
	(Cited in 003 later patents)			
Priority Applic:			US 575396	840130

Abstract:
A detectable molecule of the formula A3-(-X-R1-E-Detb)m where A3 is A2 or a polymer, where A3 has at least one modifiable reactive group selected from the group consisting of amino, hydroxy, cis OH, halides, aryl, imidazoyl, carbonyl, carboxy, thiol or a residue comprising an activated carbon; -Xis selected from the group consisting of

-HN-CO-, -HN-C(=NH)-, -N=N-, -HN-SO2-, -SO3-, -HN-N=N-, -HN-H2C-, -OOC-H2C-, -OOC-HN- AND -S-H2C- -OOC-NH-

-R1- is

-(PHENYLENE)-Y-, -(3,5-DI(ZA)-1,4-PHENYLENE)-Y-

or a C1-C10 branched or unbranched alkyl or aralkyl, which may be substituted by -OH; -Y- is a direct bond to -E-, or -Y- is -ER2- where R2 is a C1-C10 branched or unbranched alkyl; Za is chlorine, bromine or iodine; E is O, NH or an acyclic divalent sulfur atom; Detb is a chemical moiety capable of being detected, preferably comprising biotin or a metal chelator of the formula:

(ORTHO-DI(M-OOC-CH2-N(-R3)-)PHENYL)-

or the 4-hydroxy or acyloxy derivative thereof, where R3 is C1C4 alkyl or CH2COOM, M is the same or different and selected from the group consisting of hydrogen, a metal or non-metal cation or is C1-C10 alkyl, aryl or aralkyl; and m is an integer from 1 to the total number of modified reactive groups on A3. The detectable molecules are useful in in virto or in vivo assays or therapy.
Exemplary Claim:
1. A DETECTABLE MOLECULE OF THE FORMULA A3-(-X-R1-E-DETB)M WHERE A3 IS AN OLIGO- OR POLYNUCLEOTIDE HAVING AT LEAST ONE MODIFIABLE REACTIVE GROUP CONSISTING OF AMINO, HYDROXY, CIS OH, HALIDE, ARYL, IMIDAZOYL, CARBONYL, CARBOXYL, THIOL OR A RESIDUE COMPRISING AN ACTIVATED CARBON; -X- IS SELECTED FROM THE GROUP CONSISTING OF

-HN-CO-, -HN-C(=NH)-, -N=N-, -HN-SO2-, -SO3-, -HN-N=N-, -HN-H2C-, -OOC-H2C-, -OOC-HN- AND -S-H2C-

-R1- IS

-PHENYLENE-Y-, -(BIS((Z)A-)-1,4-PHENYLENE)-

A C1-C10 BRANCHED OR UNBRANCHED ALKYL OR ARALKYL, WHICH MAY BE SUBSTITUTED BY -OH; -Y- IS A DIRECT BOND TO -E-, OR -Y- IS -E-R2- WHERE -R2- IS A C1-C10 BRANCHED OR UNBRANCHED ALKYL; ZA IS CHLORINE, BROMINE OR IODINE; -E- IS O, NH OR AN ACYCLIC DIVALENT SULFUR ATOM; DETB IS A

CHEMICAL MOIETY CAPABLE OF BEING DETECTED, COMPRISING BIOTIN OR A SUBSTITUTED OR UNSUBSTITUTED METAL CHELATOR OR A COMPOUND CAPABLE OF YIELDING A METAL CHELATOR; AND M IS AN INTEGER FROM 1 TO THE TOTAL NUMBER OF MODIFIED REACTIVE GROUPS ON SAID OLIGO- OR POLYNUCLEOTIDE.

28. A NUCLEIC ACID HYBRIDIZATION ASSAY COMPRISING HYBRIDIZING TO A NUCLEIC ACID THE MOLECULE OF ANY ONE OF CLAIMS 1-27.

Class: 435006000
Class Cross Ref: 536026000; 536027000; 935078000
IPC: C12Q-001/68
IPC Cross Ref: C08G-077/04

3/5/9 (Item 1 from file: 357)
045949 DBA Accession No.: 86-03797
Infectious disease probes - biotinylated DNA probe development and application (conference paper)
AUTHOR: Olsiewski P J; Engelhardt D L
CORPORATE AFFILIATE: Enzo-Biochem
CORPORATE SOURCE: Enzo Biochem, Inc., 325 Hudson Street, New York, New York 10013, USA. (21, Biotechnol.Diagn., 149-53) 1985 CODEN: 9999X
LANGUAGE: English
ABSTRACT: DNA probes recognizing specific genes can be used to identify genetic information of any organism. The recognition process (double helix formation hybridization) provides a powerful tool for diagnostics. DNA probe technology is rapidly developing for use in the diagnosis of a wide variety of conditions, including infectious disease, cancer and genetic abnormalities. A new nonradioactive technology for labeling DNA has been developed at Enzo Biochem. An Application of the technology employs the strong binding of avidin or streptavidin to biotin. A biotinylated derivative has been produced from dUTP. The biotinylated probes hybridize normally to cDNA. Hybridization of the biotinylated DNA probe to the target can be detected using steptavidin-enzyme complexes (DETEK-1). The nonradioactive DNA probe technology described is fast, sensitive, accurate and easy to use, and the biotinylated probes are chemically stable. Enzo is adapting the probe technology to a wide variety of formats, e.g. for identifying Epstein-Barr virus in cells. In situ hybridization assays can be quickly performed, and the use of no growth assays is described. (1 ref)
DESCRIPTORS: biotinylated DNA probe development, appl. to diagnosis etc.
SECTION: Pharmaceuticals-Other; Microbiology-Genetics (D5, A1)

3/5/10 (Item 2 from file: 357)
031891 DBA Accession No.: 85-02680
Nonradioactive detection of complementary DNA sequences in Southern transfers and dot blots - using biotin or maltotriose (conference abstract)
AUTHOR: LaForge K S; Thalenfeld B E; Pergolizzi R; Yang H; Johnston K H ; Kline S
CORPORATE AFFILIATE: Enzo-Biochem
CORPORATE SOURCE: Enzo Biochem, Inc., New York, N.Y., USA. (20, Adv.Gene Technol., 556) 1983 CODEN: 9999Z
LANGUAGE: English
ABSTRACT: Cloned fragments of viral DNA were labeled by nick translation with 2'-deoxyuridinetriphosphate 5-allylamine coupled either to biotin or maltotriose. Restricted viral DNA, blotted on nitrocellulose, was hybridized with the probe using standard methods. Biotin-containing hybrids were detected by an enzyme complex composed of streptavidin (which has 4 biotin binding sites) derived from Streptomyces avidinii, and biotinylated horseradish peroxidase. When mixed, these proteins formed a complex which bound to the biotinylated DNA. Addition of an a suitable substrate resulted in rapid development of an identifiable precipitate. Maltotriose-coupled DNA was detected using horseradish peroxidase and ConA, which had 4 sugar binding sites and bound to glycosylated DNA and the peroxidase, so localizing enzyme activity at the DNA probe. Hybridizing bands containing 100 pg DNA could be

detected, and examples using DNA from cauliflower-mosaic virus and Epstein-Barr virus are cited. (2 ref)
DESCRIPTORS: cDNA det., DNA hybridization, biotin, maltotriose coupled probe
SECTION: Microbiology-Genetics; Chemistry-Analysis and Structure (A1,C1)

3/5/11 (Item 3 from file: 357)
029455 DBA Accession No.: 85-00244
DNA probes; a valuable tool in diagnostics - Bio-Probe construction and applications (conference paper)
AUTHOR: Engelhardt D L
CORPORATE AFFILIATE: Enzo-Biochem
CORPORATE SOURCE: (Pub. Address) Online Conferences Ltd., Pinner Green House, Ash Hill Drive, Pinner, Middlesex, HA5 2AE, U.K.
JOURNAL: World Biotech Rep. (1, 497-504) 1984 CODEN: 9276E
LANGUAGE: English
ABSTRACT: A novel, nonradioactive DNA probe system exploits the strong binding of avidin or streptavidin to biotin. A biotinylated derivative of dUTP has been synthesized which substitutes for TTP in several DNA labeling reactions, including nick translation. The resulting biotinylated probes, Bio-Probes (Enzo-Biochem), hybridize normally to complementary DNA. Bio-Probes are detected using streptavidin-enzyme complexes. The streptavidin binds to the biotinylated DNA probe, coupling the (signal generating) enzyme to the probe. Colored product is formed upon addition of the appropriate substrate. This nonradioactive DNA probe technology is fast, sensitive, accurate and easy to use. Bio-Probe technology has been developed for identifying infections in fixed samples or in blood or sputum samples, and has been successfully applied to dot blot analysis, colony hybridization and Southern blot analysis. (1 ref)
DESCRIPTORS: DNA probe, Bio-Probe development, appl., diagnosis
SECTION: Pharmaceuticals-Other; Microbiology-Genetics (D5,A1)

3/5/12 (Item 4 from file: 357)
025200 DBA Accession No.: 84-08475
Non radioactive biotin-dependent hybridization/detection using unlabeled probe - use for specific DNA sequence detection on dot blot and Southern transfers (conference abstract)
AUTHOR: Brakel C L; Markarian K; Engelhardt D L
CORPORATE AFFILIATE: Enzo-Biochem
CORPORATE SOURCE: Enzo Biochem, Inc. New York, New York 10013, USA.
JOURNAL: Fed.Proc.Fed.Am.Soc.Exp.Biol. (43, 7, 2048) 1984 CODEN: FEPRA7
LANGUAGE: English
ABSTRACT: A method for the non-radioactive detection of DNA probes that do not contain modified nucleotides was developed. The probe DNA is 3' terminally labeled with TTP or dATP in the presence of terminal-transferase to result in a probe which contains single stranded homopolymeric terminii. After this probe has been hybridized to target DNA, the hybridized molecules are complexed with a complementary homopolymer containing biotinylated nuclectidee. Hybridization is visualized using a colormetric detection system for biotin composed of streptavidin (a biotin-binding protein) and a biotinylated enzyme (either acid phosphatase or horseradish peroxidase). Addition of the appropriate substrate yields a colored precipitate. The detection sensitivity of this system was greater than the sensitivity obtained using directly biotinylated probes, prepared either by nick translation or terminal labeling. This new method can be used for the detection of specific sequences on dot blots and Southern transfers. (0 ref)
DESCRIPTORS: unlabeled DNA probe detection, hybridization analysis using biotin
SECTION: Microbiology-Genetics (A1)
?t s5/5/1 42;ds

5/5/1 (Item 1 from file: 399)

Actin gene expression visualized in chicken muscle tissue culture by using in situ hybridization with a biotinated nucleotide analog
AUTHOR(S): Singer, Robert H.; Ward, David C.
LOCATION: Med. Sch., Univ. Massachusetts, Worcester, MA, 01605, USA
JOURNAL: Proc. Natl. Acad. Sci. U. S. A. DATE: 1982 VOLUME: 79
NUMBER: 23 PAGES: 7331-5 CODEN: PNASA6 ISSN: 0027-8424 LANGUAGE: English
SECTION:
CA109004 Biochemical Methods
IDENTIFIERS: actin mRNA cytochem muscle
DESCRIPTORS:
Muscle,composition...
actin-specifying mRNA detection in, in culture by hybridization with biotinated recombinant plasmid contg. actin sequences
Plasmid and Episome,pBRC22...
biotinated dUTP-contg., in actin mRNA detection in muscle in culture by hybridization
Ribonucleic acids,messenger, actin-specifying...
detection of, in muscle in culture by hybridization with biotinated recombinant plasmid contg. actin sequences
Actins...
mRNA specifying, detection of, in muscle in culture by hybridization in biotinated recombinant plasmid contg. actin sequences
CAS REGISTRY NUMBERS:
1173-82-6D biotin derivs., in actin gene-contg. recombinant plasmid, actin mRNA detection in muscle in culture by hybridization with
58-85-5D dUTP derivs., in actin gene-contg. recombinant plasmid, actin mRNA detection in muscle in culture by hybridization with

5/5/2 (Item 2 from file: 399)
97211795 CA: 97(25)211795d JOURNAL
High-resolution mapping of satellite DNA using biotin-labeled DNA probes
AUTHOR(S): Manuelidis, L.; Langer-Safer, P. R.; Ward, D. C.
LOCATION: Sch. Med., Yale Univ., New Haven, CT, 06510, USA
JOURNAL: J. Cell Biol. DATE: 1982 VOLUME: 95 NUMBER: 2 Pt. 1 PAGES: 619-25 CODEN: JCLBA3 ISSN: 0021-9525 LANGUAGE: English
SECTION:
CA109002 Biochemical Methods
IDENTIFIERS: DNA localization chromosome hybridization, biotin probe DNA mapping nucleus
DESCRIPTORS:
Deoxyribonucleic acids...
biotin-labeled probe of, in satellite DNA mapping in cell nuclei and chromosome
Deoxyribonucleic acids,satellite...
mapping of, in cell nuclei and chromosome, biotin-labeled DNA probe in
Cell nucleus... Chromosome...
satellite DNA mapping in, biotin-labeled DNA probe in
CAS REGISTRY NUMBERS:
58-85-5 DNA probe labeled with, in satellite DNA mapping in cell nuclei and chromosome

5/5/3 (Item 3 from file: 399)
97051977 CA: 97(7)51977j DISSERTATION
Localization of biotin labeled hybridization probes by immunological and histochemical methods
AUTHOR(S): Langer, Pennina Rose
LOCATION: Yale Univ., New Haven, CT, USA
DATE: 1981 PAGES: 126 pp. CODEN: DABBBA LANGUAGE: English CITATION: Diss. Abstr. Int. B 1982, 42(12, Pt. 1), 4680 AVAIL: Univ. Microfilms Int., Order No. DA8211275
SECTION:
CA109002 Biochemical Methods

IDENTIFIERS: biotin hybridization probe immunol staining, DNA hybridization probe immun[redacted]staining, RNA hybridizat[redacted] probe immunol staining
DESCRIPTORS:
Deoxyribonucleic acids... Ribonucleic acids...
biotin-labeled hybridization probes for, immunol. staining of
Immunochemical analysis, immunol. staining...
for biotin-labeled hybridization probes
CAS REGISTRY NUMBERS:
58-85-5 hybridization probes labeled by, immunol. staining of

5/5/4 (Item 1 from file: 5)
10028200 BIOSIS Number: 95028200
PREVENTION OF AUTOIMMUNE INSULITIS IN NONOBESE DIABETIC MICE BY EXPRESSION OF MAJOR HISTOCOMPATIBILITY COMPLEX CLASS I L-D MOLECULES
MIYAZAKI T; MATSUDA Y; TOYONAGA T; MIYAZAKI J-I; YAZAKI Y; YAMAMURA K-I
INST. MOL. EMBRYOL. GENETICS, KUMAMOTO UNIV. SCH. MED., 4-24-1, KUHONJI, KUMAMOTO 862, JPN.
PROC NATL ACAD SCI U S A 89 (20). 1922. 9519-9523. CODEN: PNASA
Full Journal Title: Proceedings of the National Academy of Sciences of the United States of America
Language: ENGLISH
Subfile: BA (Biological Abstracts)
Nonobese diabetic (NOD) mice spontaneously develop a T-cell-mediated autoimmune disease that is similar in many respects to insulin-dependent diabetes mellitus in humans. NOD mice were shown to express major histocompatibility complex class I Kd and Db antigens. To examine the possible involvement of major histocompatibility complex class I molecules in the development of autoimmune insulitis, we attempted to express a different type of class I molecule in NOD mice by crossing C57BL/6 mice transgenic for the class I Ld gene with NOD mice. The backcross progeny expressed the Ld antigen on the peripheral blood lymphocytes at a level comparable with that of the BALB/c mice. The cell surface expression of endogenous class I and class II antigens on the peripheral blood lymphocytes was not affected. Analysis of these mice revealed that the expression of the class I Ld antigen significantly reduced the incidence of insulitis at 20 weeks of age. In situ hybridization of a biotinylated probe on mouse chromosomes showed that the Ld trangenes was located in the E area of chromosome 6 with which no genetic linkage to insulin-dependent diabetes mellitus was demonstrated. These results suggest that the NOD-type class I molecules are involved in the development of insulitis in NOD mice.
Descriptors/Keywords: TRANSGENIC MOUSE INSULIN-DEPENDENT DIABETES MELLITUS
Concept Codes:
*02506 Cytology and Cytochemistry-Animal
*03506 Genetics and Cytogenetics-Animal
*12508 Pathology, General and Miscellaneous-Inflammation and Inflammatory Disease
*13020 Metabolism-Metabolic Disorders
*15008 Blood, Blood-Forming Organs and Body Fluids-Lymphatic Tissue and Reticuloendothelial System
*17008 Endocrine System-Pancreas
*34508 Immunology and Immunochemistry-Immunopathology, Tissue Immunology
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10068 Biochemical Studies-Carbohydrates
13004 Metabolism-Carbohydrates
13012 Metabolism-Proteins, Peptides and Amino Acids
Biosystematic Codes:
86375 Muridae
Super Taxa:
Animals; Chordates; Vertebrates; Nonhuman Vertebrates; Mammals; Nonhuman Mammals; Rodents

5/5/5 (Item 2 from file: 5)

5957838 BIOSIS Number: 84090403
ASSESSMENT OF A SYNTHETIC DNA PROBE FOR PLASMODIUM-FALCIPARUM IN AFRICAN BLOOD SPECIMENS
MCLAUGHLIN G L; BRENAN J G; COLLINS F H; SCHWARTZ I K; BRANDLING-BENNETT A D; SULZER A J; COLLINS W E; SKINNER J C; RUTH J L; ET AL
MALARIA BRANCH, DIV. PARASITIC DISEASES, CENT. INFECTIOUS DISEASES, CENT. DISEASE CONTROL, ATLANTA, GEORGIA 30333.
AM J TROP MED HYG 37 (1). 1978. 27-36. CODEN: AJTHA
Full Journal Title: American Journal of Tropical Medicine and Hygiene
Language: ENGLISH
Subfile: BA (Biological Abstracts)
Synthetic DNA oligmers homologous to 21-base long repetitive sequences of Plasmodium falciparum DNA were labeled with 32P using T4 kinase, and were hybridized with purified DNA and with processed blood samples from Africa. The sequence PFR1, its antiparallel oligomer PFR1R, and PFR1 covalently attached to biotin hybridized similarly to P. falciparum DNA. One-microliter aliquots of blood from Zaire spotted on prewet nylon filters and hybridized with PFR1 gave detectable autoradiogram signals from samples with parasitemias as low as 1,000 parasites/mm3. Blood lysis and protein digestion followed by alkylation allowed dot-blot processing of larger aliquots of blood. After hybridization with PFR1 and autoradiography, 26 samples were scored positive visually, compared with 34 scored positive by microscopy. The effective sensitivity for processed 10-.mu.l samples was about 500 parasites/mm3. Signals from hybridized probes were quantitated by liquid scintillation counting and densitometry, and were proportional to the amounts of purified P. falciparum DNA applied to the filter. Autoradiogram signals also were roughly proportional (correlation coefficient, r = 0.77) to the number of parasites/mm3 of blood from field samples as determined by microscopic examination.
Descriptors/Keywords: HUMAN PARASITEMIA AUTORADIOGRAPHY DIAGNOSIS ZAIRE
Concept Codes:
*03506 Genetics and Cytogenetics-Animal
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
*12504 Pathology, General and Miscellaneous-Diagnostic
*15002 Blood, Blood-Forming Organs and Body Fluids-Blood and Lymph Studies
*60504 Parasitology-Medical
*64002 Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology-Protozoa
01012 Methods, Materials and Apparatus, General-Photography
01052 Microscopy Techniques-General and Special Techniques
06504 Radiation-Radiation and Isotope Techniques
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines
15001 Blood, Blood-Forming Organs and Body Fluids-General; Methods
Biosystematic Codes:
35400 Sporozoa
86215 Hominidae
Super Taxa:
Microorganisms; Animals; Invertebrates; Protozoans; Chordates; Vertebrates; Mammals; Primates; Humans

5/5/6 (Item 3 from file: 5)
4130069 BIOSIS Number: 76079920
ACTIN GENE EXPRESSION VISUALIZED IN CHICKEN MUSCLE TISSUE CULTURE BY USING IN-SITU HYBRIDIZATION WITH A BIOTINATED NUCLEOTIDE ANALOG
SINGER R H; WARD D C
DEP. ANATOMY, UNIV. MASSACHUSETTS MED. SCH., WORCESTER, MASS. 01605.
PROC NATL ACAD SCI U S A 79 (23). 1982. 7331-7335. CODEN: PNASA
Full Journal Title: Proceedings of the National Academy of Sciences of the United States of America
Language: ENGLISH
Subfile: BA (Biological Abstracts)
The chicken muscle tissue culture system was used for visualizing actin gene expression after [redacted] situ hybridization. C[redacted] differentiation is morphologically distinguishable in this system as the myoblasts fuse into

myotubes. This differentiation involves the production of large amounts of actin required for myofibrils. The presence of actin mRNA was observed in cells preserved with [redacted]anol and paraformaldeh[redacted] by hybridizing a recombinant plasmid into which a biotinated analog of dUTP was incorporated by nick-translation. The biotin was then detected by using an anti-biotin antibody and a rhodamine-conjugated 2nd antibody. Alternatively, avidin conjugated to rhodamine or avidin complexed to biotinated peroxidase was used for mRNA detection. The procedure described preserved morphological detail yet is compatible with hybridization conditions and reveals the disposition of actin mRNA during gene expression.
Descriptors/Keywords: RECOMBINANT PLASMID HYBRIDIZATION DIFFERENTIATION GENETIC ENGINEERING
Concept Codes:
*02506 Cytology and Cytochemistry-Animal
*03506 Genetics and Cytogenetics-Animal
*13012 Metabolism-Proteins, Peptides and Amino Acids
*17501 Muscle-General; Methods
*17504 Muscle-Physiology and Biochemistry
*25508 Developmental Biology-Embryology-Morphogenesis, General
10060 Biochemical Studies-General
31500 Genetics of Bacteria and Viruses
32500 Tissue Culture, Apparatus, Methods and Media
Biosystematic Codes:
04000 Bacteria-Unspecified (1979-)
85536 Galliformes
Super Taxa:
Microorganisms; Bacteria; Animals; Chordates; Vertebrates; Nonhuman Vertebrates; Birds

5/5/7 (Item 4 from file: 5)
4113306 BIOSIS Number: 76063157
IN-SITU HYBRIDIZATION AT THE ELECTRON MICROSCOPE LEVEL HYBRID DETECTION BY AUTO RADIOGRAPHY AND COLLOIDAL GOLD
HUTCHISON N J; LANGER-SAFER P R; WARD D C; HAMKALO B A
DEP. DEV. COLL. BIOL., UNIV. CALIF., IRVINE, CALIF. 92717.
J CELL BIOL 95 (2 PART 1). 1982. 609-618. CODEN: JCLBA
Full Journal Title: Journal of Cell Biology
Language: ENGLISH
Subfile: BA (Biological Abstracts)
In situ hybridization has become a standard method for localizing DNA or RNA sequences in cytological preparations. Two methods were developed to extend this technique to the transmission electron microscope level using mouse satellite DNA hybridization to whole mount metaphase chromosomes as the test system. The 1st method devised is a direct extension of standard light microscope in situ hybridization. Radioactively labeled complementary RNA (cRNA) is hybridized to metaphase chromosomes deposited on EM grids and fixed in 70% ethanol vapor; hybridization sites are detected by autoradiography. Specific and intense labeling of chromosomal centromeric regions is observed even after relatively short exposure times. Interphase nuclei present in some of the metaphase chromosome preparations also show defined patterns of satellite DNA labeling which suggests that satellite-containing regions are associated with each other during interphase. The sensitivity of this method may be at least as good as that at the light microscope level while the resolution is improved at least 3-fold. The 2nd method, which circumvents the use of autoradiographic detection, uses biotin-labeled polynucleotide probes. After hybridization of these probes, either DNA or RNA, to fixed chromosomes on grids, hybrids are detected via reaction with an antibody against biotin and secondary antibody adsorbed to the surface of colloidal gold particles (.apprx. 20 nm in diameter). Gold particles bind specifically both directly over centromeric heterochromatin and along the associated peripheral fibers. Labeling is on average 10 times that of background binding. This method is rapid and possesses the potential to allow precise ultrastructural localization of DNA sequences in chromosomes and chromatin.
Descriptors/Keywords: MOUSE SATELLITE DNA CHROMOSOME CHROMATIN RNA
Concept Codes:
*01050 Microscopy Techniques-Electron Microscopy

*02506 Cytology and Cytochemistry-Animal
*03506 Genetics and Cytogenetics-Animal
*06504 Radiation-Radiation and Isotope Techniques
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
01054 Microscopy Techniques-Cytology and Cytochemistry
10059 Biochemical Methods-Minerals
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
Biosystematic Codes:
86375 Muridae
Super Taxa:
Animals; Chordates; Vertebrates; Nonhuman Vertebrates; Mammals; Nonhuman Mammals; Rodents

5/5/8 (Item 5 from file: 5)
4077302 BIOSIS Number: 76027153
HIGH RESOLUTION MAPPING OF SATELLITE DNA USING BIOTIN LABELED DNA PROBES
MANUELIDIS L; LANGER-SAFER P R; WARD D C
DEP. NEUROPATHOL., YALE UNIV. SCH. MED., NEW HAVEN, CONN. 06510.
J CELL BIOL 95 (2 PART 1). 1982. 619-625. CODEN: JCLBA
Full Journal Title: Journal of Cell Biology
Language: ENGLISH
Subfile: BA (Biological Abstracts)
A novel method was developed for high resolution mapping of specific DNA sequences after in situ hybridization. DNA probes, labeled with biotin-nucleotides in conventional nick-translation reactions, are hybridized to cytological preparations and detected with affinity-purified rabbit antibiotin antibodies followed by antibodies to rabbit IgG that are conjugated to florescent or enzymatic reagents. Using peroxidase-labeled anti-rabbit IgG, specific sequences can be detected and localized at both the light and EM levels. Initial studies were done with repeated DNA sequences previously mapped by light microscope autoradiography to assess the fidelity and resolution of this method. An analysis using biotin-labeled mouse satellite DNA is presented here.
Descriptors/Keywords: RABBIT ANTIBODIES MOUSE SEQUENCE SPECIFICITY LIGHT MICROSCOPY ELECTRON MICROSCOPY
Concept Codes:
*01054 Microscopy Techniques-Cytology and Cytochemistry
*02506 Cytology and Cytochemistry-Animal
*03506 Genetics and Cytogenetics-Animal
*10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines
*10506 Biophysics-Molecular Properties and Macromolecules
*34502 Immunology and Immunochemistry-General; Methods
01012 Methods, Materials and Apparatus, General-Photography
01058 Microscopy Techniques-Electron Microscopy
06504 Radiation-Radiation and Isotope Techniques
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
10063 Biochemical Studies-Vitamins
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10068 Biochemical Studies-Carbohydrates
10300 Replication, Transcription, Translation
10804 Enzymes-Methods
Biosystematic Codes:
86040 Leporidae
86375 Muridae
Super Taxa:
Animals; Chordates; Vertebrates; Nonhuman Vertebrates; Mammals; Nonhuman Mammals; Lagomorphs; Rodents

5/5/9 (Item 6 from file: 5)
3970608 BIOSIS Number: 75017967
LEFTWARD TRANSCRIPTION IN THE ESCHERICHIA-COLI BIO OPERON DOES NOT REQUIRE PRODUCTS OF THE RIGHTWARD TRANSCRIPT
KOTVAL J; CAMPBELL A; KONOPA G; SZYBALSKI W
DEP. MICROBIOL. IMMUNOL. ALBANY MED. COLL., ALBANY, N.Y. 12208, USA.
GENE (AMST) 17 (2). 1982. 219-222. CODEN: GENED
Full Journal Title: GENE (Amsterdam)

Full Journal Title: GENE (Amsterdam)
Language: ENGLISH
Subfile: BA (Biological Abstracts)
The amount of leftward transcription in the E. coli bio operon, as measured by hybridization and by .beta.-galactosidase assays in lac-bio fusion strains, was determined in bacteria lysogenic for .lambda.bio phage carrying different amounts of DNA corresponding to rightward message, and in bacteria with polar or nonpolar bioB mutations. The positions of the bioB endpoints in relation to the pB promoter were determined by EM of heteroduplexes. Normal rates of leftward transcription were found in all cases, except that the shortest .lambda.bio (.lambda.bio267) showed a 2- to 3-fold increase in leftward transcription, which was not abolished by the presence of a wild-type bio operon in trans. Apparently no product of the rightward transcript is needed to turn on leftward transcription.
Descriptors/Keywords: PHAGE LAMBDA LAC FUSION STRAIN BIOTIN GENES BIO-B GENE
Concept Codes:
*10300 Replication, Transcription, Translation
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*31000 Physiology and Biochemistry of Bacteria
*31500 Genetics of Bacteria and Viruses
01058 Microscopy Techniques-Electron Microscopy
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
10063 Biochemical Studies-Vitamins
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10808 Enzymes-Physiological Studies
13012 Metabolism-Proteins, Peptides and Amino Acids
13018 Metabolism-Water-Soluble Vitamins
32000 Microbiological Apparatus, Methods and Media
33504 Virology-Bacteriophage
Biosystematic Codes:
02155 Styloviridae (1981-)
04810 Enterobacteriaceae (1979-)
Super Taxa:
Microorganisms; Viruses; Bacteria

5/5/10 (Item 7 from file: 5)
3955539 BIOSIS Number: 75002898
IMMUNOLOGICAL METHOD FOR MAPPING GENES ON DROSOPHILA-MELANOGASTER POLYTENE CHROMOSOMES
LANGER-SAFER P R; LEVINE M; WARD D C
DEPARTMENT OF CELL BIOLOGY, ROCHE INSTITUTE OF MOLECULAR BIOLOGY, NUTLEY, N.J. 07110.
PROC NATL ACAD SCI U S A 79 (14). 1982. 4381-4385. CODEN: PNASA
Full Journal Title: Proceedings of the National Academy of Sciences of the United States of America
Language: ENGLISH
Subfile: BA (Biological Abstracts)
A method is described for localizing DNA sequences hybridized in situ to Drosophila polytene chromosomes. This procedure utilizes a biotin-labeled analog of TTP that can be incorporated enzymatically into DNA probes by nick-translation. After hybridization in situ, the biotin molecules in the probe serve as antigens which bind affinity-purified rabbit antibiotin antibodies. The site of hybridization is then detected either fluorimetrically, by using fluorescein-labled goat anti-rabbit IgG, or cytochemically, by using an anti-rabit IgG antibody conjugated to horseradish peroxidase. When combined with Giemsa staining, the immunoperoxidase detection method provides a permanent record that is suitable for detailed cytogenetic analysis. This immunological approach offers 4 advantages over conventional autoradiographic procedures for detecting in situ hybrids: the time required to determine the site of hybridization is decreased markedly; biotin-labeled probes are chemically stable and give reproducible results for many months; biotin-labeled probes appear to produce less background noise than do radiolabeled probes; and the resolving power is equal to and often greater than that achieved autoradiographically.

Descriptors/Keywords: HORSERADISH PEROXIDASE BIOTIN DNA SEQUENCE
Concept Codes:
*02506 Cytology and Cytochemistry-Animal
*03506 Genetics and Cytogenetics-Animal
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
*10506 Biophysics-Molecular Properties and Macromolecules
*13018 Metabolism-Water-Soluble Vitamins
*34508 Immunology and Immunochemistry-Immunopathology, Tissue Immunology
*64076 Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology-Insecta-Physiology
01012 Methods, Materials and Apparatus, General-Photography
01054 Microscopy Techniques-Cytology and Cytochemistry
06504 Radiation-Radiation and Isotope Techniques
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines
10060 Biochemical Studies-General
10063 Biochemical Studies-Vitamins
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10065 Biochemical Studies-Porphyrins and Bile Pigments
10068 Biochemical Studies-Carbohydrates
10804 Enzymes-Methods
11108 Anatomy and Histology, General and Comparative-Microscopic and Ultramicroscopic Anatomy
34502 Immunology and Immunochemistry-General; Methods
51518 Plant Physiology, Biochemistry and Biophysics-Enzymes
Biosystematic Codes:
25880 Cruciferae
75314 Diptera
Super Taxa:
Plants; Vascular Plants; Spermatophytes; Angiosperms; Dicots; Animals; Invertebrates; Arthropods; Insects

5/5/11 (Item 8 from file: 5)
3688178 BIOSIS Number: 73080545
ENZYMATIC SYNTHESIS OF BIOTIN LABELED POLY NUCLEOTIDES NOVEL NUCLEIC-ACID AFFINITY PROBES
LANGER P R; WALDROP A A; WARD D C
DEP. HUMAN GENET., YALE UNIV. SCH. MED., 333 CEDAR ST., NEW HAVEN, CONN. 06510.
PROC NATL ACAD SCI U S A 78 (11). 1981. 6633-6637. CODEN: PNASA
Full Journal Title: Proceedings of the National Academy of Sciences of the United States of America
Language: ENGLISH
Subfile: BA (Biological Abstracts)
Analogs of dUTP and UTP that contain a biotin molecule covalently bound to the C-5 position of the pyrimidine ring through an allylamine linker arm were synthesized. These biotin-labeled nucleotides are efficient substrates for a variety of [Escherichia coli, herpes simplex, mouse lymphoid tumor L1210 cells, human cervical carcinoma HeLa cells, avian myeloblastosis virus reverse transcriptase] DNA and [mouse, calf thymus, E. coli, T] RNA polymerases in vitro. Polynucleotides containing low levels of biotin substitution (50 molecules or fewer per kilobase) have denaturation, reassociation, and hybridization characteristics similar to those of unsubstituted controls. Biotin-labeled polynucleotides, both single and double stranded, are selectively and quantitatively retained on avidin-Sepharose, even after extensive washing with 8 M urea, 6 M guanidine hydrochloride, or 99% formamide. In addition, biotin-labeled polynucleotides can be selectively immunoprecipitated in the presence of [rabbit] antibiotin antibody and Staphylococcus aureus protein A. The unique features of biotin-labeled polynucleotides suggest that they will be useful affinity probes for the detection and isolation of specific DNA and RNA sequences.
Descriptors/Keywords: ESCHERICHIA-COLI DNA POLYMERASE I HERPES SIMPLEX
HUMAN CERVICAL CARCINOMA HELA CELL MOUSE LYMPHOID TUMOR L-1210 CELL PHAGE T-7 RNA POLYMERASE CALF THYMUS AVIAN MYELOBLASTOSIS VIRUS REVERSE TRANSCRIPTASE RABBIT ANTI BIOTIN ANTIBODY STAPHYLOCOCCUS-AUREUS PROTEIN A

Concept Codes:
*03500 Genetics and Cytogenetics-Animal
*10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
*10300 Replication, Transcription, Translation
*10804 Enzymes-Methods
*13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
*31000 Physiology and Biochemistry of Bacteria
*31500 Genetics of Bacteria and Viruses
02506 Cytology and Cytochemistry-Animal
03508 Genetics and Cytogenetics-Human
10063 Biochemical Studies-Vitamins
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10504 Biophysics-General Biophysical Techniques
10806 Enzymes-Chemical and Physical
12100 Movement (1971-)
15006 Blood, Blood-Forming Organs and Body Fluids-Blood, Lymphatic and Reticuloendothelial Pathologies
15008 Blood, Blood-Forming Organs and Body Fluids-Lymphatic Tissue and Reticuloendothelial System
16501 Reproductive System-General; Methods
17016 Endocrine System-Thymus
24005 Neoplasms and Neoplastic Agents-Neoplastic Cell Lines
24010 Neoplasms and Neoplastic Agents-Blood and Reticuloendothelial Neoplasms
32500 Tissue Culture, Apparatus, Methods and Media
33504 Virology-Bacteriophage
33506 Virology-Animal Host Viruses
34502 Immunology and Immunochemistry-General; Methods
Biosystematic Codes:
02145 Pedoviridae (1981-)
02220 Herpetoviridae and/or Herpesviridae (1979-)
02244 Retroviridae-Oncovirinae (1979-)
04810 Enterobacteriaceae (1979-)
05510 Micrococcaceae (1979-)
86040 Leporidae
86215 Hominidae
86375 Muridae
Super Taxa:
Microorganisms; Viruses; Bacteria; Animals; Chordates; Vertebrates; Nonhuman Vertebrates; Mammals; Nonhuman Mammals; Lagomorphs; Primates; Humans; Rodents

5/5/12 (Item 9 from file: 5)
3441281 BIOSIS Number: 72073672
MEMBRANE ATTACK COMPLEX OF COMPLEMENT EVIDENCE FOR ITS DIMERIC STRUCTURE BASED ON HYBRID FORMATION
PODACK E R; MUELLER-EBERHARD H J
DEP. MOLECULAR IMMUNOL., RES. INST. SCRIPPS CLINIC, LA JOLLA, CALIF. 92037.
J BIOL CHEM 256 (7). 1981. 3145-3148. CODEN: JBCHA
Full Journal Title: Journal of Biological Chemistry
Language: ENGLISH
Subfile: BA (Biological Abstracts)
Molecular hybridization experiments provided new evidence for the dimeric nature of the membrane attack complex (MAC) of [vertebrate] complement. Monomeric C5b-6, which constitutes the 1st intermediate complex in MAC formation, was prepared in the following 2 differentially labeled forms: biotin-125I-C5b-6 and 131I-C5b-6. Using a mixture of the differentially labeled C5b-6, the MAC was assembled on phospholipid vesicles upon addition of C7, C8 and C9. The assembled MAC containing biotin-125I and 131I was extracted from the vesicles with deoxycholate, purified and exposed to avidin-Cepharose. Biotin-mediated binding of the MAC to avidin-Sepharose effected binding of 125I and of 131I, indicating that both radiolabels resided in the same molecular entity. When equimolar amounts of differentially labeled C5b-6 were available for MAC formation, 50% of MAC

formed contained 1 molecule of each form. Theoretical analysis of the experimental data clearly favored the dimer structure over the structure of a higher oligomer. Fluid phase SC5b-9 [C5b-9 formed in serum] was clearly monomeric on the basis of the same analysis. The EM appearance of the biotinated MAC hybrid closely resembled that of the characteristic membrane lesions of C lysed cells. An avidin-ferritin conjugate attached itself to the ring-shaped portion of the biotinated MAC and not to its perpendicular structures, suggesting that C5b-6 is an integral part of the ring structure of the MAC.

Descriptors/Keywords: VERTEBRATE COMPLEMENT C-5B THROUGH C-6 COMPLEMENT C-7 COMPLEMENT C-8 COMPLEMENT C-9 COMPLEMENT MEDIATED CELL LYSIS ELECTRON MICROSCOPY

Concept Codes:

*01058 Microscopy Techniques-Electron Microscopy
*02506 Cytology and Cytochemistry-Animal
*10064 Biochemical Studies-Proteins, Peptides and Amino Acids
*10506 Biophysics-Molecular Properties and Macromolecules
*10508 Biophysics-Membrane Phenomena
*11108 Anatomy and Histology, General and Comparative-Microscopic and Ultramicroscopic Anatomy
*13012 Metabolism-Proteins, Peptides and Amino Acids
*15002 Blood, Blood-Forming Organs and Body Fluids-Blood and Lymph Studies
*34502 Immunology and Immunochemistry-General; Methods
*34508 Immunology and Immunochemistry-Immunopathology, Tissue Immunology
06504 Radiation-Radiation and Isotope Techniques
10054 Biochemical Methods-Proteins, Peptides and Amino Acids
10066 Biochemical Studies-Lipids
10067 Biochemical Studies-Sterols and Steroids
10068 Biochemical Studies-Carbohydrates
10069 Biochemical Studies-Minerals
10504 Biophysics-General Biophysical Techniques
12100 Movement (1971-)
12510 Pathology, General and Miscellaneous-Necrosis (1971-)

Biosystematic Codes:

85150 Vertebrata-Unspecified

Super Taxa:

Animals; Chordates; Vertebrates; Nonhuman Vertebrates

5/5/13 (Item 10 from file: 5)
3013062 BIOSIS Number: 69050469

STABILIZATION OF R LOOP STRUCTURES BY PHOTOCHEMICAL CROSS LINKING WITH 4 5' 8 TRI METHYL PSORALEN APPLICATION TO GENE ENRICHMENT AND MOLECULAR CLONING

WITTIG B; WITTIG S
INST. MOLKULARBIOL. BIOCHEM., FREIE UNIV. BERL., ARNIMALLEE 22, D-1000 BERLIN 33, W. GER.

BIOCHEM BIOPHYS RES COMMUN 91 (2). 1979. 554-562. CODEN: BBRCA
Full Journal Title: Biochemical and Biophysical Research Communications
Language: ENGLISH
Subfile: BA (Biological Abstracts)

R loops formed between [chicken embryo] nucleosomal DNA and tRNA can be photochemically cross-linked with 4,5',8-trimethylpsoralen directly in the R loop formation buffer. When biotin is coupled to the tRNA 3'-terminus via a diaminohexan linker and the modified tRNA employed for R loop hybridization, the cross-linked R loops can be efficiently purified by affinity chromatography on avidin-glass columns. Following tRNA hydrolysis the partially cross-linked double-stranded DNA highly enriched for tRNA genes can be cloned in Escherichia coli .chi.1776.

Descriptors/Keywords: CHICKEN EMBRYO ESCHERICHIA-COLI BIOTIN RADIOSENSITIZER GENETIC ENGINEERING

Concept Codes:

*02506 Genetics and Cytogenetics-Animal
*06506 Radiation-Radiation Effects and Protective Measures
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines

*10300 Replication, Transcription, Translation
*10314 Metabolism-Nucl[redacted] Acids, Purines and Pyri[redacted]ines
*31500 Genetics of Bacteria and Viruses
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines
10060 Biochemical Studies-General
10504 Biophysics-General Biophysical Techniques
10604 External Effects-Light and Darkness
12100 Movement (1971-)
25504 Developmental Biology-Embryology-Experimental
31000 Physiology and Biochemistry of Bacteria
Biosystematic Codes:
04810 Enterobacteriaceae (1979-)
85536 Galliformes
Super Taxa:
Microorganisms; Bacteria; Animals; Chordates; Vertebrates; Nonhuman Vertebrates; Birds

5/5/14 (Item 11 from file: 5)
2764442 BIOSIS Number: 68019349
STRAND SPECIFIC ATTACHMENT OF AVIDIN SPHERES TO DOUBLE STRANDED POLIOVIRUS RNA
RICHARDS O C; EHRENFELD E; MANNING J
DEP. BIOCHEM., UNIV. UTAH COLL. MED., SALT LAKE CITY, UTAH 84132, USA.
PROC NATL ACAD SCI U S A 76 (2). 1979. 676-680. CODEN: PNASA
Full Journal Title: Proceedings of the National Academy of Sciences of the United States of America
Language: ENGLISH
Subfile: BA (Biological Abstracts)
Poliovirus-specific double-stranded RNA molecules containing covalently attached protein were coupled with a biotin ester through the protein moiety. Subsequent interaction of the RNA-biotin with avidin attached to electron-opaque plastic spheres led to the formation of complexes that were easily visualized by EM. Avidin-spheres were associated only with 1 end of the RNA-biotin molecules, as seen by EM. Avidin-sphere attachment to poliovirus double-stranded RNA is strand specific, as shown by molecular hybridization of strand-specific probes to the separated strands of denatured complexes [3H]DNA complementary to polio virion RNA hybridized exclusively to the strands bearing associated spheres [(+) strands] but 125I-labeled virion RNA hybridized predominantly with strands without spheres [(-) strands]. This biotin-avidin labeling technique provides a means for the isolation of full-length poliovirus (-) strands and may provide a general means for isolation of double-stranded polynucleotides containing tightly attached protein.
Descriptors/Keywords: BIOTIN
Concept Codes:
*10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
*10506 Biophysics-Molecular Properties and Macromolecules
*33506 Virology-Animal Host Viruses
01058 Microscopy Techniques-Electron Microscopy
06504 Radiation-Radiation and Isotope Techniques
10010 Comparative Biochemistry, General
10052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines
10063 Biochemical Studies-Vitamins
32000 Microbiological Apparatus, Methods and Media
Biosystematic Codes:
02232 Picornaviridae (1979-)
Super Taxa:
Microorganisms; Viruses

5/5/15 (Item 12 from file: 5)
2423969 BIOSIS Number: 65050377
TAXONOMIC STUDIES ON A HYDRO CARBON ASSIMILATING CANDIDA STRAIN
KANEKO T; ISHII K; KAWAHARADA H; KAGOTANI K; SHIMADA Y; WATANABE K
INST. PHYS. CHEM. RES., WAKO-SHI, SAITAMA 351, JPN.
AGRIC BIOL CHEM 41 (11). 1977 (RECD 1978) 2269-2276. CODEN: ABCHA
Full Journal Title: Agricultural and Biological Chemistry

Language: ENGLISH
Subfile: BA (Biological Abstracts)
Taxonomic and some other properties of a yeast strain, Candida sp. 36, which characteristically assimilates n-alkanes, were described. Identification of coenzyme Q, NMR spectroscopy of cell wall polysaccharides, determination of G + C [guanine + cytosine] content of DNA and some DNA-DNA hybridization experiments were carried out, in addition to the morphological and physiological observations. All the data were consistent with the suggestion that C. cloacae Komagata, Nakase and Katsuya and C. subtropicalis Nakase, Fukazawa and Tsuchiya are the synonyms of C. maltosa Komagata, Nakase and Katsuya. Candida sp. 36 was identified as C. maltosa, too. The yeast was found to grow most abundantly on n-hexadecane and on n-octadecane in the presence of biotin.
Descriptors/Keywords: CANDIDA-CLOACAE CANDIDA-SUBTROPICALIS CANDIDA-MALTOSA CANDIDA-SP COENZYME Q CELL WALL POLY SACCHARIDES GUANINE CYTOSINE DNA HYBRIDIZATION NMR SPECTROSCOPY
Concept Codes:
*02504 Cytology and Cytochemistry-Plant
*50506 Botany, General and Systematic-Fungi
*51000 Morphology, Anatomy and Embryology of Plants
*51519 Plant Physiology, Biochemistry and Biophysics-Metabolism
10010 Comparative Biochemistry, General
10058 Biochemical Methods-Carbohydrates
10060 Biochemical Studies-General
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
10068 Biochemical Studies-Carbohydrates
10504 Biophysics-General Biophysical Techniques
10808 Enzymes-Physiological Studies
13002 Metabolism-General Metabolism; Metabolic Pathways
13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
51518 Plant Physiology, Biochemistry and Biophysics-Enzymes
Biosystematic Codes:
15500 Fungi Imperfecti or Deuteromycetes
Super Taxa:
Microorganisms; Plants; Nonvascular Plants; Fungi

5/5/16 (Item 13 from file: 5)
2193702 BIOSIS Number: 64020622
A METHOD FOR GENE ENRICHMENT BASED ON THE AVIDIN BIOTIN INTERACTION APPLICATION TO THE DROSOPHILA RIBOSOMAL RNA GENES
MANNING J; PELLEGRINI M; DAVIDSON N
BIOCHEMISTRY 16 (7). 1977 1364-1370. CODEN: BICHA
Full Journal Title: Biochemistry
Subfile: BA (Biological Abstracts)
A method of enriching, from the total DNA of an organism, for long DNA strands carrying a particular gene is described. The purified RNA corresponding to the gene is covalently attached to biotin via a cytochrome c bridge. This modified RNA is hybridized to the total DNA. Those DNA strands which hybridize are separated from all the other DNA, using the avidin-biotin interaction, by 1 of 2 methods. Avidin is covalently attached to submicroscopic polymer spheres; the complexes of avidin spheres with the DNA:RNA-biotin hybrids band in CsCl at a much lower buoyant density than does free DNA. Alternatively, the DNA:RNA-biotin hybrids are isolated by affinity chromatography on an avidin-solid support column. These methods were used to prepare long single strands of Drosophila ribosomal DNA (rDNA) in high yield and 42-80% pure.
Descriptors/Keywords: DNA HYBRIDIZATION CYTOCHROME C BRIDGE BUOYANT DENSITY AFFINITY CHROMATOGRAPHY
Concept Codes:
*01054 Microscopy Techniques-Cytology and Cytochemistry
*02506 Cytology and Cytochemistry-Animal
*03506 Genetics and Cytogenetics-Animal
*10506 Biophysics-Molecular Properties and Macromolecules
*64070 Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology-Insecta-Physiology
13052 Biochemical Methods-Nucleic Acids, Purines and Pyrimidines

10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
10063 Biochemical Studies-Vitamins
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10065 Biochemical Studies-Porphyrins and Bile Pigments
10504 Biophysics-General Biophysical Techniques
10802 Enzymes-General and Comparative Studies; Coenzymes
11108 Anatomy and Histology, General and Comparative-Microscopic and Ultramicroscopic Anatomy
12100 Movement (1971-)
Biosystematic Codes:
75314 Diptera
Super Taxa:
Animals; Invertebrates; Arthropods; Insects

5/5/17 (Item 14 from file: 5)
2116329 BIOSIS Number: 63020749
AN ELECTRON MICROSCOPE STUDY OF THE RELATIVE POSITIONS OF THE 4S AND RIBOSOMAL RNA GENES IN HELA CELL MITOCHONDRIAL DNA
ANGERER L; DAVIDSON N; MURPHY W; LYNCH D; ATTARDI G
CELL 9 (1). 1976 81-90. CODEN: CELLB
Full Journal Title: Cell
Subfile: BA (Biological Abstracts)
The 4S RNA genes in HeLa mitochondrial DNA (mtDNA) were mapped by EM using the electron-opaque label ferritin. This method is based on the high affinity interaction between the protein, avidin and biotin. 4S RNA, covalently coupled to biotin, was hybridized to single-stranded mtDNA. The hybrids were then labeled with ferritin-avidin conjugates. The positions of ferritin-labeled 4S RNA genes were determined relative to the rRNA [ribosomal RNA] genes on both heavy (H) and light (L) strands of mtDNA. This region was recognized as a duplex segment after hybridization either with rRNA in the case of H strands or with DNA complementary to rRNA in the case of L strands. At least 19 4S RNA genes are present in the HeLa mitochondrial genome. On the H strand, 9 map positions were found in a previous EM mapping study and 3 additional 4S RNA genes were discussed. On the L strand, 7 4S RNA genes were mapped. The 19 genes are distributed more or less uniformly around the genome. There is a pair of closely spaced genes, approximately 150 nucleotides apart, on the H strand, and another closely spaced pair on the L strand.
Descriptors/Keywords: HUMAN PROTEIN AVIDIN BIOTIN INTERACTION DUPLEX SEGMENT
Concept Codes:
*02508 Cytology and Cytochemistry-Human
*03508 Genetics and Cytogenetics-Human
*10506 Biophysics-Molecular Properties and Macromolecules
*11108 Anatomy and Histology, General and Comparative-Microscopic and Ultramicroscopic Anatomy
*24005 Neoplasms and Neoplastic Agents-Neoplastic Cell Lines
*24006 Neoplasms and Neoplastic Agents-Biochemistry
01054 Microscopy Techniques-Cytology and Cytochemistry
01058 Microscopy Techniques-Electron Microscopy
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
10063 Biochemical Studies-Vitamins
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
13012 Metabolism-Proteins, Peptides and Amino Acids
Biosystematic Codes:
86215 Hominidae
Super Taxa:
Animals; Chordates; Vertebrates; Mammals; Primates; Humans

5/5/18 (Item 15 from file: 5)
1878361 BIOSIS Number: 61042921
A NEW METHOD OF IN-SITU HYBRIDIZATION
MANNING J E; HERSHEY N D; BROKER T R; PELLEGRINI M; MITCHELL H K; DAVIDSON N
CHROMOSOMA (BERL) 53 (2). 1975 (RECD 1976) 107-117. CODEN: CHROA
Full Journal Title: CHROMOSOMA (Berlin)

Subfile: BA (Biological Abstracts)
Descriptors/Keywords: DROSOPHILA-MELANOGASTER CYTOCHROME C BIOTIN AVIDIN RIBOSOMAL RNA SCANNING ELECTRON MICROSCOPY
Concept Codes:
*02506 Cytology and Cytochemistry-Animal
*03506 Genetics and Cytogenetics-Animal
*11108 Anatomy and Histology, General and Comparative-Microscopic and Ultramicroscopic Anatomy
*64076 Invertebrata, Comparative and Experimental Morphology, Physiology and Pathology-Insecta-Physiology
01054 Microscopy Techniques-Cytology and Cytochemistry
01058 Microscopy Techniques-Electron Microscopy
06504 Radiation-Radiation and Isotope Techniques
10060 Biochemical Studies-General
10062 Biochemical Studies-Nucleic Acids, Purines and Pyrimidines
10064 Biochemical Studies-Proteins, Peptides and Amino Acids
10065 Biochemical Studies-Porphyrins and Bile Pigments
10300 Replication, Transcription, Translation
10506 Biophysics-Molecular Properties and Macromolecules
10802 Enzymes-General and Comparative Studies; Coenzymes
13012 Metabolism-Proteins, Peptides and Amino Acids
13014 Metabolism-Nucleic Acids, Purines and Pyrimidines
Biosystematic Codes:
75314 Diptera
Super Taxa:
Animals; Invertebrates; Arthropods; Insects

5/5/19 (Item 1 from file: 155)
04884672 83117672
Actin gene expression visualized in chicken muscle tissue culture by using in situ hybridization with a biotinated nucleotide analog.
Singer RH; Ward DC
Proc Natl Acad Sci U S A Dec 1982, 79 (23) p7331-5, ISSN 0027-8424
Journal Code: PV3
Contract/Grant No.: NS00288
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 8305
Subfile: INDEX MEDICUS
The chicken muscle tissue culture system has been used for visualizing actin gene expression after in situ hybridization. Cell differentiation is morphologically distinguishable in this system as the myoblasts fuse into myotubes. This differentiation involves the production of large amounts of actin required for myofibrils. The presence of actin mRNA has been observed in cells preserved with ethanol and paraformaldehyde by hybridizing a recombinant plasmid into which a biotinated analog of dUTP was incorporated by nick-translation. The biotin was then detected by using an anti-biotin antibody and a rhodamine-conjugated second antibody. Alternatively, avidin conjugated to rhodamine or avidin complexed to biotinated peroxidase has been used for mRNA detection. The procedure described preserved morphological detail yet is compatible with hybridization conditions and reveals the disposition of actin mRNA during gene expression.
Tags: Animal; Support, U.S. Gov't, P.H.S.
Descriptors: *Actins--Genetics--GE; *Muscles--Physiology--PH; Biotin --Diagnostic Use--DU; Cell Differentiation; Cell Fusion; Cells, Cultured; Chickens; Gene Expression Regulation; Muscles--Cytology--CY; Nucleic Acid Hybridization
CAS Registry No.: 0 (Actins); 58-85-5 (Biotin)

5/5/20 (Item 2 from file: 155)
04824170 83057170
High-resolution mapping of satellite DNA using biotin-labeled DNA probes.
Manuelidis L; Langer-Safer PR; Ward DC
J Cell Biol Nov 1982, [illegible]05 (2 Pt 1) p619-25, ISS[illegible]0021-9525
Journal Code: HMV
Contract/Grant No.: CA-15044; GM-20124; CA-16038

Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 8303
Subfile: INDEX MEDICUS

We have developed a novel method for high resolution mapping of specific DNA sequences after in situ hybridization. DNA probes, labeled with biotin-nucleotides in conventional nick-translation reactions, are hybridized to cytological preparations and detected with affinity-purified rabbit antibiotin antibodies followed by antibodies to rabbit IgG that are conjugated to fluorescent or enzymatic reagents. Using peroxidase labeled anti-rabbit IgG, we are able to detect and localize specific sequences at both the light and electron microscopic levels. Initial studies were done with repeated DNA sequences previously mapped by light microscope autoradiography to assess the fidelity and resolution of this method. An analysis using biotin-labeled mouse satellite DNA is presented here.

Tags: Animal; Support, U.S. Gov't, P.H.S.

Descriptors: *Chromosomes--Analysis--AN; *DNA, Satellite; *Nucleic Acid Hybridization; Base Sequence; Biotin--Immunology--IM; Cell Line; Centromere --Analysis--AN; Chromosomes--Ultrastructure--UL; Glioma; Heterochromatin --Analysis--AN; Immunoenzyme Techniques; Mice

CAS Registry No.: 0 (DNA, Satellite); 0 (Heterochromatin); 58-85-5 (Biotin)

5/5/21 (Item 3 from file: 155)
04824169 83057169

In situ hybridization at the electron microscope level: hybrid detection by autoradiography and colloidal gold.

Hutchison NJ; Langer-Safer PR; Ward DC; Hamkalo BA

J Cell Biol Nov 1982, 95 (2 Pt 1) p609-18, ISSN 0021-9525 Journal Code: HMV

Contract/Grant No.: GM 07311; RCDA GM 002333; GM 23241
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 8303
Subfile: INDEX MEDICUS
Tags: Animal; Support, U.S. Gov't, P.H.S.

Descriptors: *DNA; *Nucleic Acid Hybridization; Autoradiography; Biotin; Cell Line; Centromere; Chromosomes--Analysis--AN; Chromosomes --Ultrastructure--UL; Colloids; Gold; Heterochromatin--Analysis--AN; Immunoassay; Mice; Microscopy, Electron; RNA

CAS Registry No.: 0 (Colloids); 0 (Heterochromatin); 0 (RNA); 58-85-5 (Biotin); 7440-57-5 (Gold); 9007-49-2 (DNA)

5/5/22 (Item 4 from file: 155)
04781902 83014902

Immunological method for mapping genes on Drosophila polytene chromosomes.

Langer-Safer PR; Levine M; Ward DC

Proc Natl Acad Sci U S A Jul 1982, 79 (14) p4381-5, ISSN 0027-8424 Journal Code: PV3

Contract/Grant No.: GM-20124; CA-16038
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 8301
Subfile: INDEX MEDICUS

A method is described for localizing DNA sequences hybridized in situ to Drosophila polytene chromosomes. This procedure utilizes a biotin-labeled analog of TTP that can be incorporated enzymatically into DNA probes by nick-translation. After hybridization in situ, the biotin molecules in the probe serve as antigens which bind affinity-purified rabbit antibiotin antibodies. The site of hybridization is then detected either fluorimetrically, by using fluorescein-labeled goat anti-rabbit IgG, or cytochemically, by using an anti-rabbit IgG antibody conjugated to horseradish peroxidase. When combined with Giemsa staining, the immunoperoxidase detection method provides a permanent record that is suitable for detailed cytogenetic analysis. This immunological approach

offers four advantages over conventional autoradiographic procedures for detecting in situ hybrids: (i) the time required to determine the site of hybridization is decreased markedly, (ii) biotin-labeled probes are chemically stable and give reproducible results for many months; (iii) biotin-labeled probes appear to produce less background noise than do radiolabeled probes; and (iv) the resolving power is equal to and often greater than that achieved autoradiographically.
Tags: Animal; Support, U.S. Gov't, P.H.S.
Descriptors: *Chromosome Mapping; *Chromosomes--Ultrastructure--UL; *Drosophila melanogaster--Genetics--GE; *Nucleic Acid Hybridization; Biotin --Diagnostic Use--DU; Biotin--Immunology--IM; Immunoenzyme Techniques; Methods
CAS Registry No.: 58-85-5 (Biotin)

5/5/23 (Item 5 from file: 155)
04668821 82211821
Leftward transcription in the Escherichia coli bio operon does not require products of the rightward transcript.
Kotval J; Campbell A; Konopa G; Szybalski W
Gene Feb 1982, 17 (2) p219-22, ISSN 0378-1119 Journal Code: FOP
Contract/Grant No.: AI-08573; CA-23076; CA-07175
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 8210
Subfile: INDEX MEDICUS
The amount of leftward transcription in the Escherichia coli bio operon, as measured by hybridization and by beta-galactosidase assays in lac-bio fusion strains, was determined in bacteria lysogenic for lambda bio phage carrying different amounts of DNA corresponding to rightward message, and in bacteria with polar or nonpolar bioB mutations. The positions of the bioB endpoints in relation to the pB promoter were determined by electron microscopy of heteroduplexes. Normal rates of leftward transcription were found in all cases, except that the shortest lambda bio (lambda bio showed a 2- to 3-fold increase in leftward transcription, which was not abolished by the presence of a wild-type bio operon in trans. These results indicate that no product of the rightward transcript is needed to turn on leftward transcription.
Tags: Support, U.S. Gov't, P.H.S.
Descriptors: *Escherichia coli--Genetics--GE; *Polarity of Translation; *Recombination, Genetic; *Transcription, Genetic; *Translation, Genetic; Bacteriophage lambda--Genetics--GE; Biotin--Genetics--GE; Genetic Markers; Kinetics; Lac Operon; Lysogeny; Mutation; Operon
CAS Registry No.: 0 (Genetic Markers); 58-85-5 (Biotin)

5/5/24 (Item 6 from file: 155)
04539503 82082503
Enzymatic synthesis of biotin-labeled polynucleotides: novel nucleic acid affinity probes.
Langer PR; Waldrop AA; Ward DC
Proc Natl Acad Sci U S A Nov 1981, 78 (11) p6633-7, ISSN 0027-8424 Journal Code: PV3
Contract/Grant No.: GM-20124; CA-16038
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 8204
Subfile: INDEX MEDICUS
Analogs of dUTP and UTP that contain a biotin molecule covalently bound to the C-5 position of the pyrimidine ring through an allylamine linker arm have been synthesized. These biotin-labeled nucleotides are efficient substrates for a variety of DNA and RNA polymerases in vitro. Polynucleotides containing low levels of biotin substitution (50 molecules or fewer per kilobase) have denaturation, reassociation, and hybridization characteristics similar to those of unsubstituted controls. Biotin-labeled polynucleotides, both single and double-stranded, are selectively and quantitatively retained on avidin-Sepharose, even after extensive washing with 8 M urea, 6 M guanidine hydrochloride, or 80% formamide. In addition

biotin-labeled polynucleotides can be selectively immunoprecipitated in the presence of antibiotin antibody and Staphylococcus aureus protein A. The unique features of biotin-labeled polynucleotides suggest that they will be useful affinity probes for the detection and isolation of specific DNA and RNA sequences.

Tags: Support, U.S. Gov't, P.H.S.

Descriptors: *Affinity Labels--Chemical Synthesis--CS; *Biotin; *Poly U --Chemical Synthesis--CS; DNA Polymerase I--Metabolism--ME; DNA Restriction Enzymes--Metabolism--ME; Escherichia coli--Enzymology--EN; Kinetics; RNA Polymerases--Metabolism--ME; Substrate Specificity; T-Phages--Enzymology --EN

CAS Registry No.: 0 (Affinity Labels); 27416-86-0 (Poly U); 58-85-5 (Biotin)

Enzyme No.: EC 2.7.7.- (DNA Polymerase I); EC 2.7.7.6 (RNA Polymerases); EC 3.1.21. (DNA Restriction Enzymes)

5/5/25 (Item 7 from file: 155)
04471855 82014855

Sequence arrangement of the rRNA genes of the dipteran Sarcophaga bullata.

French CK; Fouts DL; Manning JE

Nucleic Acids Res Jun 11 1981, 9 (11) p2563-76, ISSN 0301-5610 Journal Code: O8L

Contract/Grant No.: CA 00522; GM 22207

Languages: ENGLISH

Document type: JOURNAL ARTICLE

JOURNAL ANNOUNCEMENT: 8201

Subfile: INDEX MEDICUS

Velocity sedimentation studies of RNA of Sarcophaga bullata show that the major rRNA species have sedimentation values of 26S and 18S. Analysis of the rRNA under denaturing conditions indicates that there is a hidden break centrally located in the 26S rRNA species. Saturation hybridization studies using total genomic DNA and rRNA show that 0.08% of the nuclear DNA is occupied by rRNA coding sequences and that the average repetition frequency of these coding sequences is approximately 144. The arrangement of the rRNA genes and their spacer sequences on long strands of purified rDNA was determined by the examination of the structure of rRNa:DNA hybrids in the electron microscope. Long DNA strands contain several gene sets (18S + 26S) with one repeat unit containing the following sequences in order given: (a) An 18S gene of length 2.12 kb, (b) an internal transcribed spacer of length 2.01 kb, which contains a short sequence that may code for a 5.8S rRNA, (c) A 26S gene of length 4.06 kb which, in 20% of the cases, contains an intron with an average length of 5.62 kb, and (d) an external spacer of average length of 9.23 kb.

Tags: Animal; Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.

Descriptors: *Diptera--Genetics--GE; *DNA--Genetics--GE; *Genes, Structural; *RNA, Ribosomal--Genetics--GE; Base Sequence; Biotin; Cytochrome C; Microscopy, Electron; Molecular Weight; Nucleic Acid Conformation; Nucleic Acid Hybridization; Repetitive Sequences, Nucleic Acid

CAS Registry No.: 0 (RNA, Ribosomal); 58-85-5 (Biotin); 9007-43-6 (Cytochrome C); 9007-49-2 (DNA)

5/5/26 (Item 8 from file: 155)
04314309 81142309

Membrane attack complex of complement. Evidence for its dimeric structure based on hybrid formation.

Podack ER; Muller-Eberhard HJ

J Biol Chem Apr 10 1981, 256 (7) p3145-8, ISSN 0021-9258 Journal Code: HIV

Contract/Grant No.: AI 07007; CA 27489; HL 07195; +

Languages: ENGLISH

Document type: JOURNAL ARTICLE

JOURNAL ANNOUNCEMENT: 8107

Subfile: INDEX MEDICUS

Molecular hybridization experiments provided new evidence for the dimeric

nature of the membrane attack complex (MAC) of complement. Monomeric C5b-6, which constitutes the first intermediate complex in MAC formation, was prepared in two differentially labeled forms: biotin-125I-C5b-6 and 131I-C5b-6. Using a mixture of the differentially labeled C5b-6, the MAC was assembled on phospholipid vesicles upon addition of C7, C8, and C9. The assembled MAC containing biotin-125I and 131I was extracted from the vesicles with deoxycholate, purified, and exposed to avidin-Sepharose. Biotin-mediated binding of the MAC to avidin-Sepharose not only effected binding of 125I, but also of 131I, indicating that both radiolabels resided in the same molecular entity. When equimolar amounts of differentially labeled C5b-6 were available for MAC formation, 50% of MAC formed contained one molecule of each form. Theoretical analysis of the experimental data clearly favored the dimer structure over the structure of a higher oligomer. In contrast, fluid phase SC5b-9 was clearly monomeric on the basis of the same analysis. The electron microscopic appearance of the biotinated MAC hybrid closely resembled that of the characteristic membrane lesions of complement lysed cells. An avidin-ferritin conjugate attached itself to the ring-shaped portion of the biotinated MAC and not to its perpendicular structures, suggesting that C5b-6 is an integral part of the ring structure of the MAC.

Tags: Human; Support, Non-U.S. Gov't; Support, U.S. Gov't, P.H.S.

Descriptors: *Complement; Biotin; Liposomes; Macromolecular Systems; Microscopy, Electron; Phosphatidylcholines; Protein Hybridization

CAS Registry No.: 0 (Complement Membrane Attack Complex); 0 (Liposomes); 0 (Macromolecular Systems); 0 (Phosphatidylcholines); 58-85-5 (Biotin); 9007-36-7 (Complement)

5/5/27 (Item 9 from file: 155)

03760174 79137174

Strand-specific attachment of avidin-spheres to double-stranded poliovirus RNA.

Richards OC; Ehrenfeld E; Manning J

Proc Natl Acad Sci U S A Feb 1979, 76 (2) p676-80, ISSN 0027-8424 Journal Code: PV3

Languages: ENGLISH

Document type: JOURNAL ARTICLE

JOURNAL ANNOUNCEMENT: 7907

Subfile: INDEX MEDICUS

Poliovirus-specific double-stranded RNA molecules containing covalently attached protein were coupled with a biotin ester through the protein moiety. Subsequent interaction of the RNA-biotin with avidin attached to electronopaque plastic spheres led to the formation of complexes that were easily visualized in the electron microscope. Avidinspheres were associated only with one end of the RNA-biotin molecules, as seen in the electron microscope. Avidin-sphere attachment to poliovirus double-stranded RNA is strand specific, as shown by molecular hybridization of strand-specific probes to the separated strands of denatured complexes. [3H]DNA complementary to polio virion RNA hybridized exclusively to the strands bearing associated spheres [(+) strands] whereas 125I-labeled virion RNA hybridized predominantly with strands without spheres [(-)strands]. This biotin-avidin labeling technique provides a means for the isolation of full-length poliovirus (-) strands and may provide a general means for isolation of double-stranded polynucleotides containing tightly attached protein.

Tags: Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.

Descriptors: *Avidin--Metabolism--ME; *Ovalbumin--Analogs and Derivatives --AA; *Poliovirus--Metabolism--ME; *RNA, Viral--Metabolism--ME; Base Sequence; Biotin--Metabolism--ME; Hela Cells; Microscopy, Electron; RNA, Viral--Isolation and Purification--IP; Virus Replication

5/5/28 (Item 10 from file: 155)

03502630 78136630

Electron microscopic visualization of tRNA genes with ferritin-avidin: biotin labels.

Broker TR; Angerer LM; [illegible] PH; Hershey ND; Davidson N

Nucleic Acids Res Feb 1978, 5 (2) p363-84, ISSN 0301-5610

Journal Code: O8L
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7807
Subfile: INDEX MEDICUS

A method is described for indirect electron microscopic visualization and mapping of tRNA and other short transcripts hybridized to DNA. This method depends upon the attachment of the electron-dense protein ferritin to the RNA, the binding being mediated by the remarkably strong association of the egg white protein avidin with biotin. Biotin is covalently attached to the 3' end of tRNA using an NH2(CH2)5NH2 bridge. The tRNA-biotin adduct is hybridized to complementary DNA sequences present in a single stranded non-homology loop of a DNA:DNA heteroduplex. Avidin, covalently crosslinked to ferritin, is mixed with the heteroduplex and becomes bound to the hybridized tRNA-biotin. Observation of the DNA:RNA-biotin:avidin-ferritin complex by electron microscopy specifically and accurately reveals the position of the tRNA gene, with a frequency of labeling of approximately 50%.

Tags: Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.

Descriptors: *DNA, Bacterial--Genetics--GE; *Genes, Structural; *RNA, Bacterial--Genetics--GE; *RNA, Transfer--Genetics--GE; Avidin; Biotin; Chemistry; Chromosome Mapping; Coliphages; Escherichia coli--Genetics--GE; Ferritin; Microscopy, Electron--Methods--MT

5/5/29 (Item 11 from file: 155)
03377724 78011724

Application of the avidin-biotin method of gene enrichment to the isolation of long double-stranded DNA containing specific gene sequences.

Pellegrini M; Holmes DS; Manning J

Nucleic Acids Res Sep 1977, 4 (9) p2961-73, ISSN 0301-5610
Journal Code: O8L
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7801
Subfile: INDEX MEDICUS

A method of enriching for long double-stranded segments of eukaryotic DNA carrying particular genes is described. A purified RNA coded for by the gene is covalently attached to biotin via the protein, cytochrome c. This modified RNA is hybridized to total nuclear, double-stranded DNA under conditions that allow the formation of R-loops. Avidin, which has a high affinity for biotin, is covalently attached to polymer spheres. The complexes of avidin-spheres with DNA:RNA-biotin R-loop hybrids band in CsCl at a much lower bouyant density than does free DNA. This density is a function of the length of DNA coupled per avidin-sphere. This method was used to prepare very long double-strands of DNA highly enriched in the coding sequences for the large rRNAs of D. melanogaster and L. donovani and the histone mRNAs of S. purpuratus.

Tags: Animal; Support, U.S. Gov't, P.H.S.

Descriptors: *DNA; *Genes; Avidin; Biotin; Cell Nucleus--Analysis--AN; Cytochrome C; Drosophila melanogaster; DNA--Isolation and Purification--IP; DNA--Metabolism--ME; Genetic Code; Histones--Biosynthesis--BI; Leishmania; Methods; Microscopy, Electron; Nucleic Acid Conformation; Nucleic Acid Hybridization; RNA, Messenger--Metabolism--ME; Sea Urchins

5/5/30 (Item 12 from file: 155)
03232757 77134757

A method for gene enrichment based on the avidin-biotin interaction. Application to the Drosophila ribosomal RNA genes.

Manning J; Pellegrini M; Davidson N

Biochemistry Apr 5 1977, 16 (7) p1364-70, ISSN 0006-2960
Journal Code: A0G
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7707
Subfile: INDEX MEDICUS

A method of enriching from the total DNA of an organism for long DNA

strands carrying a particular gene is described. The purified RNA corresponding to the gene is covalently attached to biotin via a cytochrome c bridge. This modified RNA is hybridized to the total DNA. Those DNA strands which hybridize are separated from all the other DNA, using the avidin-biotin interaction, by one of two methods. Avidin is covalently attached to submicroscopic polymer spheres; the complexes of avidin spheres with the DNA: RNA-biotin hybrids band in CsCl at a much lower buoyant density than does free DNA. Alternatively, the DNA:RNA-biotin hybrids are isolated by affinity chromatography on an avidin-solid support column. These methods have been used to prepare long single strands of Drosophila ribosomal DNA (rDNA) in high yield and 42 to 80% pure.

Tags: Animal; Support, U.S. Gov't, P.H.S.

Descriptors: *Avidin--Metabolism--ME; *Biotin--Metabolism--ME; *Drosophil a melanogaster--Metabolism--ME; *Genes; *Ovalbumin--Analogs and Derivatives --AA; *RNA, Ribosomal--Metabolism--ME; *Transcription, Genetic; Binding Sites; Cell Nucleus--Metabolism--ME; Cytochrome C--Metabolism--ME; DNA --Metabolism--ME; Microscopy, Electron; Nucleic Acid Conformation; Nucleic Acid Hybridization; Nucleic Acid Renaturation; Plasmids; Protein Binding

5/5/31 (Item 13 from file: 155)
03122043 77024043

An electron microscope study of the relative positions of the 4S and ribosomal RNA genes in HeLa cells mitochondrial DNA.

Angerer L; Davidson N; Murphy W; Lynch D; Attardi G

Cell Sep 1976, 9 (1) p81-90, ISSN 0092-8674 Journal Code: CQ4

Languages: ENGLISH

Document type: JOURNAL ARTICLE

JOURNAL ANNOUNCEMENT: 7702

Subfile: INDEX MEDICUS

The 4S RNA genes in HeLa mitochondrial DNA (mtDNA) have been mapped by electron microscopy using the electron-opaque label ferritin. This method is based on the high affinity interaction between the protein, avidin, and biotin. 4S RNA, covalently coupled to biotin, was hybridized to single-stranded mtDNA. The hybrids were then labeled with ferritin-avidin conjugates. The positions of ferritin-labeled 4S RNA genes were determined relative to the rRNA genes on both heavy (H) and light (L) strands of mtDNA. This region was recognized as a duplex segment after hybridization either with rRNA in the case of H strands or with DNA complementary to rRNA in the case of L strands. Our studies suggest that at least nineteen 4S RNA genes are present in the HeLa mitochondrial genome. On the H strand, we have confirmed the nine map positions found in a previous electron microscope mapping study (Wu et al., 1972) and obtained evidence for three additional 4S RNA genes. On the L strand, seven 4S RNA genes have been mapped. The nineteen genes are distributed more or less uniformly around the genome. There is a pair of closely spaced genes, approximately 150 nucleotides apart, on the H strand, and another closely spaced pair on the L strand.

Tags: Support, U.S. Gov't, P.H.S.

Descriptors: *DNA, Mitochondrial--Analysis--AN; *Genes, Structural; *Hela Cells; *RNA--Biosynthesis--BI; *RNA, Ribosomal--Biosynthesis--BI; Chromosome Mapping; Ferritin; Microscopy, Electron; Nucleic Acid Hybridization

5/5/32 (Item 14 from file: 155)
02884590 76065590

A new method of in situ hybridization.

Manning JE; Hershey ND; Broker TR; Pellegrini M; Mitchell HK; Davidson N

Chromosoma Nov 24 1975, 53 (2) p107-17, ISSN 0009-5915 Journal Code: D7A

Languages: ENGLISH

Document type: JOURNAL ARTICLE

JOURNAL ANNOUNCEMENT: 7604

Subfile: INDEX MEDICUS

A new method for gene mapping at the chromosome level using in situ hybridization and scanning electron microscopy is described and has been applied to mapping the rRNA genes of Drosophila melanogaster. Biotin is

covalently attached to Drosophila rRNA via a cytochrome c bridge at a ratio of one cytochrome-biotin per 130 nucleotides by a chemical procedure. Polymethacrylate spheres with a diameter of ca. 60 nm are prepared by emulsion polymerization and are covalently attached to the protein avidin at a ratio of 5-20 avidins per sphere. The biotin-labeled rRNA is hybridized to denatured DNA in a chromosome squash. Upon incubation with a sphere solution, some of the biotin sites become labeled with spheres because of the strong non-covalent interaction between biotin and avidin. The chromosome squash is examined in the scanning electron microscope (SEM). Polymer spheres, which are visible in the SEM, are observed to label the nucleolus, where the rRNA genes are located.

Tags: Animal; Support, U.S. Gov't, Non-P.H.S.; Support, U.S. Gov't, P.H.S.

Descriptors: *Chromosome Mapping; *Nucleic Acid Hybridization; Avidin; Biotin; Cytochrome C; Drosophila melanogaster--Cytology--CY; DNA--Analysis --AN; Genes; Methods; Methylmethacrylates; Microscopy, Electron, Scanning; Microspheres; Nucleic Acid Denaturation; RNA, Ribosomal--Biosynthesis--BI

5/5/33 (Item 15 from file: 155)
02782305 75189305

Mode of action of alpha-dehydrobiotin, a biotin analogue.

Eisenberg MA

J Bacteriol Jul 1975, 123 (1) p248-54, ISSN 0021-9193
Journal Code: HH3

Languages: ENGLISH

Document type: JOURNAL ARTICLE

JOURNAL ANNOUNCEMENT: 7511

Subfile: INDEX MEDICUS

Alpha-Dehydrobiotin, like biotin, represses coordinately the 7,8-diaminopelargonic acid aminotransferase and the dethiobiotin synthetase enzymes that are encoded on the l and r strands, respectively, of the bioA operon. The rate of synthesis for both enzymes is inhibited about 80% in the presence of alpha-dehydrobiotin. Homobiotin and alpha-methylbiotin are less effective than alpha-dehydrobiotin in repressing the synthesis of the two enzymes. The selective repression of transcription from l and by alpha-dehydrobiotin and homobiotin, previously reported in hybridization experiments, is not observed at the enzyme level. A combination of equal concentrations of biotin and alpha-dehydrobiotin which was reported to enhance selectively the level of messenger ribonucleic acid transcribed from the l strand does not increase the rate of synthesis of the aminotransferase enzyme. Instead, the enzymes encoded on both strands are essentially completely inhibited as with biotin alone. Strain differences have been ruled out to account for the different results obtained by the two methodologies. Our evidence would suggest that alpha-dehydrobiotin acts like biotin, presumably as the co-repressor, in the repression of the bioA operon. The low rates of enzyme synthesis observed in the presence of the biotin analogue is the result of incomplete repression due to a lower affinity of either the analogue for the repressor or of the co-repressor/repressor complex for the operator. While our evidence would support the concept of a two promoter/operator complex, both would have to respond equally to biotin and its analogues. The evidence, however, does not rule out other possible alternative models for the regulation of the biotin operon.

Tags: Support, U.S. Gov't, P.H.S.

Descriptors: *Aminotransferases--Biosynthesis--BI; *Biotin--Analogs and Derivatives--AA; *Escherichia coli--Enzymology--EN; *Ligases--Biosynthesis --BI; *Operon--Drug Effects--DE; Amino Acids; Biotin--Pharmacology--PD; Enzyme Repression--Drug Effects--DE; Fatty Acids; Hybridization; Keto Acids ; Kinetics; Mutation; S-Adenosylmethionine; Transcription, Genetic--Drug Effects--DE

5/5/34 (Item 16 from file: 155)
02579388 74297388

A deletion mutation placing the galactokinase gene of Escherichia coli under control of the biotin promoter.

Kelner G; Campbell A

Proc Natl Acad Sci U S A Jul 1974, 71 (7) p2698-702, ISSN 0027-8424
Journal Code: PV3
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7412
Subfile: INDEX MEDICUS
Descriptors: *Biotin--Metabolism--ME; *Escherichia coli--Metabolism--ME; *Genes, Structural; *Mutation; *Operon; *Phosphotransferases, ATP --Biosynthesis--BI; Chromosome Mapping; Coliphages; Escherichia coli --Enzymology--EN; Galactose--Metabolism--ME; Genotype; Microscopy, Electron ; Nucleic Acid Hybridization; Pyrophosphates--Pharmacology--PD; Transcription, Genetic; Transduction, Genetic

5/5/35 (Item 17 from file: 155)
02451143 74169143
Biotin: biogenesis, transport, and their regulation.
Eisenberg MA
Adv Enzymol Relat Areas Mol Biol 1973, 38 p317-72, ISSN 0065-258X
Journal Code: 2LM
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7409
Subfile: INDEX MEDICUS
Descriptors: *Biotin--Metabolism--ME; Aminotransferases--Metabolism--ME; Biological Transport; Biotin--Biosynthesis--BI; Carbon Radioisotopes; Chromatography, Paper; Diamines; Escherichia coli--Metabolism--ME; Escherichia coli--Radiation Effects--RE; Glutamates--Metabolism--ME; Hydrogen-Ion Concentration; Isotope Labeling; Kinetics; Ligases--Metabolism --ME; Mutation; Nucleic Acid Hybridization; Pimelic Acids--Metabolism--ME; Radiation Effects; Species Specificity; Structure-Activity Relationship; Transcription, Genetic; Transduction, Genetic

5/5/36 (Item 18 from file: 155)
02295519 74013519
Evidence of two operators in the biotin locus of Escherichia coli.
Vrancic A; Guha A
Nature New Biol Sep 26 1973, 245 (143) p106-8, ISSN 0090-0028
Journal Code: NSH
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7401
Subfile: INDEX MEDICUS
Descriptors: *Biotin--Biosynthesis--BI; *Escherichia coli--Metabolism--ME ; *Operon; Chromosome Mapping; Coliphages; DNA, Viral--Metabolism--ME; Nucleic Acid Hybridization; RNA, Bacterial--Metabolism--ME; Transcription, Genetic; Transduction, Genetic; Tritium

5/5/37 (Item 19 from file: 155)
02012965 72262965
Genetic complementation of virulence in avirulent mutants of Microsporum gypseum.
Hejtmanek M; Lenhart K
Folia Biol (Praha) 1972, 18 (4) p225-30, ISSN 0015-5500
Journal Code: EYH
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7212
Subfile: INDEX MEDICUS
Tags: Animal
Descriptors: *Genetics, Microbial; *Microsporum--Pathogenicity--PY; Biotin--Metabolism--ME; Diploidy; Guinea Pigs; Hybridization; Inositol --Metabolism--ME; Microsporum--Cytology--CY; Microsporum --Growth and Development--GD; Mutation; Phenotype; Recombination, Genetic; Virulence

5/5/38 (Item 20 from file: 155)
01638998 71183998

Divergent orientation of transcription from the biotin locus of Escherichia coli.
Guha A
J Mol Biol Feb 28 1971, 56 (1) p53-62, ISSN 0022-2836
Journal Code: JGV
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7108
Subfile: INDEX MEDICUS
Descriptors: *Biotin--Biosynthesis--BI; *Escherichia coli; *Genetic Code; *Genetics, Biochemical; Coliphages; DNA, Viral; Hybridization; Operon; RNA, Bacterial; Suppression, Genetic; Tritium

5/5/39 (Item 21 from file: 155)
01196994 70041994
Identification of Bacillus subtilis NRRL B-3275 as a strain of Bacillus pumilus.
Lovett PS; Young FE
J Bacteriol Nov 1969, 100 (2) p658-61, ISSN 0021-9193
Journal Code: HH3
Languages: ENGLISH
Document type: JOURNAL ARTICLE
JOURNAL ANNOUNCEMENT: 7002
Subfile: INDEX MEDICUS
Descriptors: *Bacillus--Isolation and Purification--IP; *Bacillus subtilis--Isolation and Purification--IP; Amino Acids--Metabolism--ME; Bacillus--Classification--CL; Bacillus--Metabolism--ME; Biotin--Metabolism--ME; DNA, Bacterial--Analysis--AN; DNA, Bacterial --Isolation and Purification--IP; Hybridization; L Forms; Protein Denaturation; Transformation, Genetic

5/5/40 (Item 1 from file: 357)
008125 DBA Accession No.: 83-00037
An improved method for in situ hybridization at the EM level - potential analysis of the structure of transcriptionally active chromatin (conference abstract)
AUTHOR: Narayanswam S; Hutchison N J; Ward D C; Hamkalo B A
CORPORATE SOURCE: Department of Molecular Biology and Biochemistry, University of California, Irvine, CA. 92717, USA.
JOURNAL: J.Cell Biol. (95, 2, 74a) 1982 CODEN: JCLBA3
LANGUAGE: English
ABSTRACT: In situ hybridization at the EM level can be accomplished by nick-translating DNA probes in the presence of a biotinylated uridine nucleotide (bio-dUYP). Glutaraldehyde-fixed material is denatured, hybridized with probe, incubated with antibody and then colloidal gold. 20 nM gold particles were replaced with 5nm particles as the electron-dense detector. Intensification of signal results when probes are nick-translated with a biotinylated nucleotide having an extended carbon linker-arm. Probes have been hybridized to nascent transcripts in Miller spreads, using amplified ribosomal genes from the oocytes of Notophthalmus viridescens. When a cloned Xenopus ribosomal DNA sequence, nick-translated with bio-dUTP is used as probe, followed by standard labeling, only the nucleolar matrix units are labeled. This technique should allow identification of active genes and detailed analysis of the structure of transcriptionally active chromatin. (0 ref)
DESCRIPTORS: in situ DNA hybridization, nick-translating DNA probe, biotinylated uridine nucleotide
SECTION: Microbiology-Genetics (A1)

5/5/41 (Item 2 from file: 357)
005246 DBA Accession No.: 82-04246
High-resolution mapping of satellite DNA using biotin-labeled DNA probes - in situ hybridization and detection using electron microscopy
AUTHOR: Manuelidis L; Langer-Safer P R; Ward D C
CORPORATE SOURCE: Department of Neuropathology, Yale University School of

Medicine, New Haven, Connecticut 06510, USA.
JOURNAL: J.Cell Biol. (95, 619-25) 1982 CODEN: JCLBA3
LANGUAGE: English
ABSTRACT: A method was developed for high resolution mapping of specific DNA sequences after in situ hybridization. Mouse satellite DNA probes were labeled with biotin-nucleotides in conventional nick-translation reactions. The probes were added to dry slides of mouse glioblastoma TC 509 and mouse A9 cells, and incubated at 60 deg in a moist chamber for 4 hr to complete in situ hybridization. Hybridized DNA was detected using affinity-purified rabbit antibiotin antibody, followed by antibodies to rabbit IgG that had been conjugated to fluorescent or enzymatic reagents. By light microscopy, peroxidase-labeled antibodies showed specific localization of satellite DNA to centromeric heterochromatin. Metaphase chromosomes and nuclei showed well delinated labeling with very low background and little scatter of signal. Using electron microscopy, the extent and configuration of satellite sequences were more strikingly resolved. Resolution was greater than that previously obtained using conventional autoradiography. (30 ref)
DESCRIPTORS: in situ DNA hybridization detection, mapping, electron microscopy, biotin-labeled DNA probe
SECTION: Microbiology-Genetics (A1)

5/5/42 (Item 3 from file: 357)
005245 DBA Accession No.: 82-04245
In situ hybridization at the electron microscope level: hybrid detection by autoradiography and colloidal gold - localization of DNA or RNA sequences in cytological preparations
AUTHOR: Hutchison N J; Langer-Safer P R; Ward D C; Hamkalo B A
CORPORATE SOURCE: Fred Hutchison Cancer Research Center, Seattle, Washington 98104, USA.
JOURNAL: J.Cell Biol. (95, 609-18) 1982 CODEN: JCLBA3
LANGUAGE: English
ABSTRACT: In situ hybridization has become a standard method for localizing DNA or RNA sequences in cytological preparations. 2 Methods were developed to extend this technique to the transmission electron microscope level using mouse satellite DNA hybridization to whole mount metaphase chromosomes as the test system. Radioactively labeled cRNA was hybridized to metaphase chromosomes deposited on electron microscope grid and fixed in 70% ethanol vapor; hybridization sites were detected by autoradiography. Specific and intense labeling of shromosomal centromeric regions was observed even after relatively short exposure times. The second method, which circumvented the use of autoradiographic detection, used biotin-labeled polynucleotide probes. After hybridization of these probes, either DNA or RNA, to fixed chromosomes on grids, hybrids were detected via reaction with an antibody against biotin and secondary antibody adsorbed to the surface of colloidal gold particles. Labeling was on average ten times that of background binding. (60 ref)
DESCRIPTORS: in situ DNA hybridization, RNA hybridization detection, mapping, electron microscopy, autoradiography, colloidal gold
SECTION: Microbiology-Genetics (A1)

Set	Items	Description
S1	1269	AU=ENGELHARDT, D? OR AU=ENGELHARDT D? OR AU=RABBANI? OR AU=KLINE, S? OR AU=KLINE S? OR AU=STAVRIANOPOULOS? OR AU=KIRTIKAR?
S2	3616	HYBRIDIZ? AND BIOTIN?
S3	12	S1 AND S2
S4	42	S2 NOT (PY=1993 OR PY=1992 OR PY=1991 OR PY=1990 OR PY=1989 OR PY=1988 OR PY=1987 OR PY=1986 OR PY=1985 OR PY=1984 OR PY=1983)
S5	42	S4 NOT S3

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